

“Healthy Borders 2010”

Pre-Publication Edition for the U.S.-Mexico Border Health
Commission Meeting, October 15, 2001



*An Agenda for Improving Health
On the U.S.-Mexico Border*

FOREWORD

On behalf of the U.S. Mexico Border Health Commission, we proudly present the Healthy Border 2010 Program – Programa Frontera Saludable 2010.

The Healthy border 2010 Program aims to promote and improve the health of the people living on the United States-Mexico Border region. The program creates 10-year objectives for Health Promotion and Disease Prevention in the Border region.

Healthy Border 2010 is the first binational Initiative that embraces common health elements in both the United States and Mexico. In the United States it draws on the U.S. Border States Healthy Gente (people) Program designed to be comparable with the National Healthy People 2010 Program. From Mexico it is based on the National Health Program which determines the main strategies to achieve equity, quality and financial protection.

The Healthy Border 2010 Program creates an agenda for improving health on the United States-Mexico Border. The program has two overarching goals:

1. To increase and improve the quality and years of healthy life
2. Eliminate health disparities

To be able to reach these goals, we must all work together, individuals, organizations institutions, universities, and communities alike.

We are actively supporting this endeavor and invite you to work with the U.S.-Mexico Border Commission to advance the health of all people on the border. We invite you to share with the Commission your experiences in work towards the health objectives and indicators identified in this document. This includes the identification of best practices, models of excellence and strategies on how to create health, social, cultural, and economic capital for border communities.

Healthy Border 2010 Program will promote cross border collaboration among all health agencies and institutions. Through this program the U.S.-Mexico Border Health Commission will identify health priorities, establish public health efforts, and support programs to address these priorities.

We salute your collective commitment and leadership and call on you to work jointly to forge a vision of a healthier and a more disease prevention oriented border.

Secretary Tommy G. Thompson
Commissioner

Secretary Julio Frenk
Commissioner

Acknowledgments

Many individuals have contributed to the preparation of this report. The overall project was initiated by the “Design Team” for the U.S.-Mexico Border Health Commission which was established by the Secretary of Health and Human Services in 1998[✓] to begin preparatory work towards the establishment of a binational Commission. The four U.S. border states embraced the idea of Healthy Border 2010 which they coined Healthy “Gente” 2010. This report is a synthesis of much of the previous work which was done to define the initial list of objectives by Dr. Steve Waterman of California, Dr. Luis Ortega of Arizona, Mr. Dan Reyna of New Mexico and Dr. Ronald (RJ) J. Dutton of Texas.

The report writing and coordination of statistical input were the responsibility of Dr. Francis (Sam) Notzon for the United States and Dr. Sonia Fernandez for Mexico; Dr. Juan Albertorio provided statistical assistance. Mr. Richard Walling and Ms. Amy Burns of the Office of International and Refugee Health, Department of Health and Human Services and Lic. Eduardo Jaramillo and Lic. Hilda Davila of the Secretariat of Health of Mexico reviewed drafts of the report and made many improvements. It would be hard to overstate the contributions that many other individuals made to this report. Members of the Border Health Commission made many helpful suggestions and supported development of the report. Staff from numerous Mexican and U.S. government agencies also provided key data and helpful comments.

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Chapter 1: Introduction

The Healthy Border 2010 Program aims to improve health in the U.S.-Mexico border region, an area defined as 100 kilometers (62 miles) north and south of the U.S.-Mexico border. Established by the U.S.-Mexico Border Health Commission, the program establishes 10-year objectives for health promotion and disease prevention in the border region.

Healthy Border 2010 is a binational initiative that embraces common elements of health programs in both the U.S. and Mexico. From the U.S., it draws on the Healthy *Gente* Program (*gente* is the Spanish word for people), which provides health objectives for the U.S. border region and is designed to be compatible with the U.S. Healthy People 2010 program. From Mexico, it draws on the National Health Indicators (*Indicadores de Resultados*) Program, which tracks health measures at the national, state and local levels in Mexico.

Development of the Healthy Border Program

Healthy Border 2010 has its roots in the second meeting of the U.S.-Mexico Border Health Commission in Mexico City in March 2001. The Commission agreed to establish a binational health promotion and disease prevention program, to be known as the Healthy Border Program. This initiative was intended to define the key health issues on both sides of the border and lay out the objectives for a joint program between Mexico and the United States.

The Healthy Border 2010 Program is composed of the common elements from Mexico's National Health Indicators and the U.S. Healthy *Gente* programs. Out of the 46 Mexican health indicators and the 25 U.S. Healthy *Gente* objectives, there are 20 common measures. These objectives represent most of the priority areas for action on health issues in the border region. Reflecting the selection criteria used for the Healthy *Gente* Program and the Health Indicators Program, the objectives were deliberately limited to a relatively few quantifiable measures for which data could be obtained from reliable sources. These objectives will help focus health

improvement activities on both sides of the border, guide the allocation of health resources, and promote binational health projects. However, health problems considered priority issues on only one side of the border will be addressed separately by each country.

The Healthy Border 2010 Program does not attempt to impose identical objectives on both sides of the border. This is because of national differences in areas such as the organization of the health care systems, data availability, and others. Instead, the program identifies several topic areas for health improvement in the border regions of both countries. The specific objectives, as well as the targets for the year 2010, are defined by each country and differ to at least some extent for most objectives.

Implementation will almost certainly differ between the U.S. and Mexico, because health authorities in each nation will be responsible for designing and implementing their own programs. However, the Commission will also encourage binational activities, especially those established in sister cities along the border. Ideally, these cross-border activities will attract partners such as international organizations, non-governmental organizations, and the private sector. In addition, these binational projects should be developed through the existing cooperation infrastructure, including the Binational Councils.

Healthy Border 2010 Objectives

The 20 common elements included in the Healthy Border 2010 Program are grouped into 12 areas, each with a specific set of objectives. The areas and their respective objectives include:

- Access to Health Care - ensuring access to primary care or basic health care services;
- Cancer - reducing breast cancer and cervical cancer mortality;
- Diabetes – reducing both the mortality of diabetes and the need for hospitalization;
- Environmental Health – improving household access to sewage disposal and reducing hospital admissions for acute pesticide poisoning;
- HIV/AIDS - reducing the incidence of HIV/AIDS;

- Immunization and Infectious Diseases – expanding immunization coverage for young children, as well as reducing the incidence of hepatitis and tuberculosis;
- Injury Prevention – reducing mortality from motor vehicle crashes as well as childhood mortality from injuries;
- Maternal, Infant and Child Health – reducing infant mortality due to congenital defects, improving prenatal care, and reducing teenage pregnancy rates;
- Mental Health – reducing suicide mortality;
- Oral Health – improving access to oral health care;
- Respiratory Diseases – reducing the rate of hospitalization for asthma.
- Biomedical and Behavioral Sciences – increasing health – related research capacity.

All of these objectives focus on specific issues that greatly affect the health of individuals and communities in the border region. Monitoring progress in fulfilling them will publicize achievements and challenges in border health during the next decade.

The list of objectives presented in this report is not intended to be a static list. The Border Health Commission will develop other objectives as time permits, thus creating a dynamic set of objectives that will be used to address health needs along the U.S.-Mexico border over the next decade.

Chapter 2: Background

The Healthy Border 2010 Program was developed from activities on both sides of the US-Mexico border, drawing on existing national programs and binational collaborative projects within the border region.

Previous activities in the United States: Healthy Border 2010 is a direct descendant of the national health promotion and disease prevention program known as Healthy People. Earlier versions of this program were carried out in the 1980s and 1990s. A new national program, Healthy People 2010, was established in 2000 to continue health promotion and disease

prevention activities through the next decade. All three of these programs combined health promotion and disease prevention activities at the national, state and local levels, along with a rigorous monitoring program.

The Healthy *Gente* Program draws on the national health objectives defined in the Healthy People program, by identifying 25 of the most important objectives to address the distinct needs and concerns of the United States communities that border Mexico. Healthy *Gente* was developed by the U.S. section of the Border Health Commission, using four principles to guide the selection of objectives:

- 1 The objectives should address key health issues on the border;
- 2 They should be limited in number;
- 3 To the extent possible, they should be measurable;
- 4 They should be compatible with federal and state objectives.

Objectives also were designed to resonate with the border population, be easily understood by the public, and help coordinate public and private health programs. Most, but not all, of the Healthy *Gente* objectives are data-based: 18 can be tracked with routinely collected data. Data for the remaining 7 objectives, known as developmental objectives, will be sought during the decade. Data for 4 will be available early in the decade, while data for the final 3 objectives will most likely be collected via special surveys.

Previous activities in Mexico: The Secretariat of Health developed the National Health Indicators as part of the Health Sector Reform Program undertaken in the early 1990s. The indicators were part of a new planning and evaluation process, designed to assist in the decentralization of the Mexican national health care system. The Secretariat of Health proposed 46 indicators to evaluate and monitor the effectiveness of health policies within Mexico. The indicators were selected to meet the following criteria:

- 5 They should represent priority health issues in Mexico;
- 6 They should be measurable;
- 7 The information should come from reliable sources.

The National Health Indicators Program set targets for 2000 for each indicator. Because the program was part of the health care decentralization program, both national and state-level targets were established. Although targets were not set at the *municipio* or local level, information for many indicators is available at the *municipio* level, making it possible to monitor many local conditions. A *municipio* is roughly equivalent to a U.S. county.

On both sides of the border: U.S. and Mexican border communities have collaborated on joint health improvement activities for many decades. Some of these health projects have been limited to a single pair of sister cities, while others have been state-wide or border-wide programs. In some cases the projects have focused on a single disease, such as the “Ten Against TB” project involving the ten border states. Others have been broader in scope, such as the “Project Consenso” coordinated by the US-Mexico Border Health Association, which sought to identify the major health issues in the border region. The Healthy Border Program has drawn on all of these activities, to varying degrees, in order to establish a regional health improvement program for the U.S.-Mexico border region.

U.S.-Mexico Border Health Commission

Public and private organizations from both sides of the border have worked for several decades to address the most pressing health issues of the border region. The interest shown by these groups led the United States Congress to pass legislation in 1994 authorizing and encouraging the President to conclude an agreement with Mexico establishing the United States-Mexico Border Health Commission. Negotiations with Mexico were completed in July 2000. In the same year, Mexico authorized a binational health commission, and both countries appointed their commission members.

Years of binational collaboration have shown that for the Border Health Commission to be effective, it must include participation from the federal, state, and local levels in both nations. Thus the Commission was designed to combine public and private capabilities and resources from all of these levels. To this end, the Commission includes representatives of both federal governments, the 6 Mexican and 4 U.S. border states, and border communities and constituencies.

Despite the numerous special groups and commissions that have studied border health problems for years, the border has never enjoyed an effective and sustainable mechanism for advocacy and consensus-building on health issues. Strong national support for the Commission from both countries, as well as the multilevel dimension of the Commission, will help to ensure that it becomes an effective and long-lasting advocate for border health issues.

Under the implementing legislation approved by both governments, the Border Health Commission was assigned several specific goals. Through the Healthy Border Program, the Commission will accomplish the two most important goals, which are to identify key health issues in the U.S.-Mexico border region, and to develop programs to address those problems.

Chapter 3: A Demographic and Health Profile of the Border Population

The 2000 censuses of Mexico and the United States revealed the following about border population:

- 8 There were about 17.9 million inhabitants in the border region, with 6.5 million on the Mexican side and 11.4 million on the U.S. side.
- 9 Although the border region is composed of 48 U.S. counties and 88 Mexican *municipios*, the bulk of the population is found in a small number of urban areas.
- 10 Nearly three-quarters of the Mexican border population is concentrated in 11 *municipios*. The three largest *municipios* - Juarez, Tijuana and Mexicali - account for nearly half of the total Mexican border population.
- 11 In the United States, almost 97 percent of the population resides in 17 counties. Nearly two-thirds of the U.S. border population is concentrated in three counties: Maricopa county (Phoenix), Arizona; Riverside county (Los Angeles), California; and San Diego county, California.
- 12 In terms of proximity, the largest Mexican cities are located directly on the border with the United States, while two of the three largest U.S. border counties are not directly adjacent to Mexico.

Population Growth

Between 1990 and 2000, both sides of the border experienced rapid population growth (see Figure A). The Mexico border region grew by 39 percent during the 1990s, an annual growth rate of 3.3 percent and nearly two times the national growth rate. The U.S. border region grew by 28 percent, or about 2.5 percent per year, which was more than twice the U.S. national growth rate. If current population growth continues, the border population could double in 25 years.

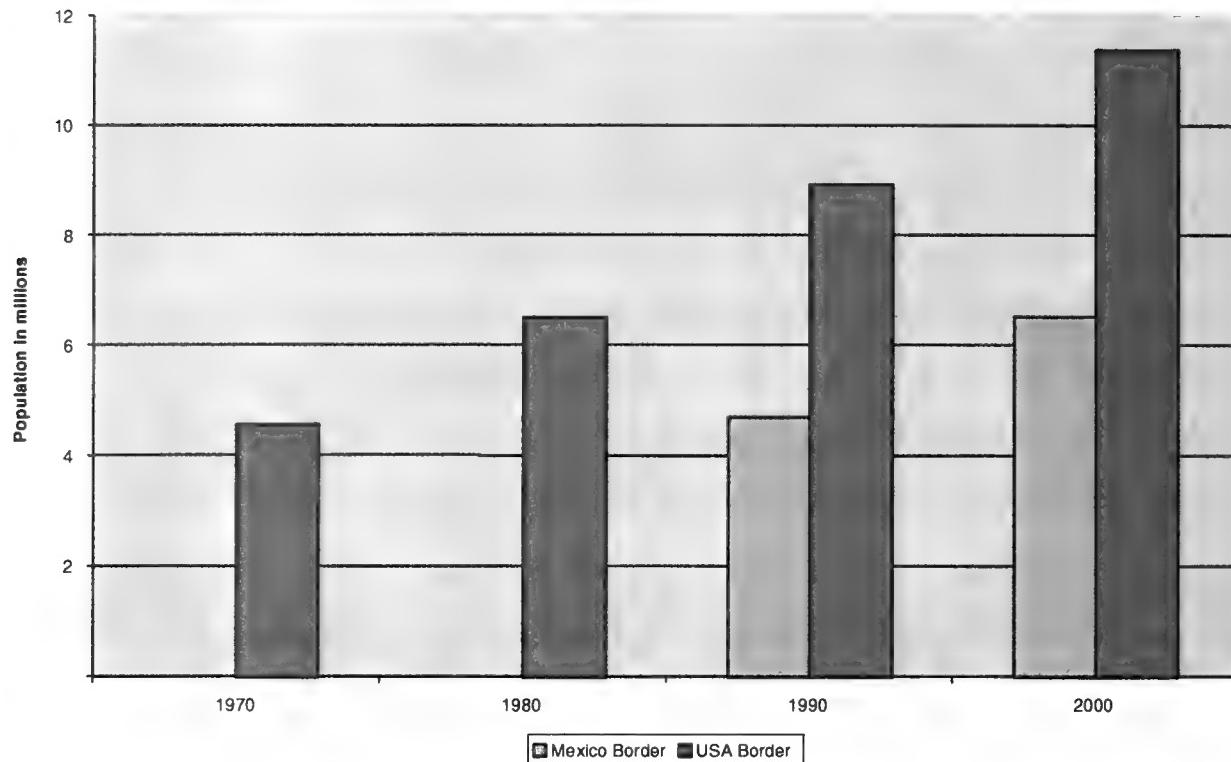
In Mexico, the highest growth rates occurred in the larger cities, such as Tijuana (62 percent growth) and Juarez (53 percent). On the U.S. side, growth was especially high in some of the largest counties, such as Maricopa (44 percent increase), and in some mid-sized counties such as Webb (44 percent growth). Many of the smaller Texas counties lost population during the decade.

Rapid population growth in the region is the result of a number of factors:

- 13 A young population and relatively high birth rate on both sides of the border;
- 14 Migration fueled by economic development on both sides of the border, as well as quality of life issues that have boosted migration to the U.S. Sunbelt states;
- 15 The advent of the North American Free Trade Agreement (NAFTA) and the growth of maquiladoras, which are foreign manufacturing plants located in Mexico that import raw materials or components and export their finished products. This has particularly affected population growth on the Mexican side of the border.

Daily border crossings have risen in tandem with rapid population growth and economic development on both sides of the border. Information on border crossings is incomplete, but current estimates range from 300 million to 400 million legal crossings in each direction per year, or between 800,000 and 1.1 million legal border crossings per day.

Figure A. Population growth, U.S.-Mexico border, 1970-2000



Age and Ethnic Composition

The population is relatively young on both sides of the border, primarily due to high fertility. In 2000, about 24 percent of the U.S. border population was under 15 years of age, versus 21 percent for the United States. Thirty-one percent of the Mexican border population was under 15 years of age, which was somewhat less than the 33 percent share for all of Mexico. The fertility rate on the U.S. side of the border was 80 births per 1000 women of childbearing ages in 1998, or 21 percent higher than the U.S. national rate. The fertility rate in the Texas border region was 101, or more than 50 percent higher than the national rate. In Mexico, the border fertility rate was 101, which was lower than the Mexican national fertility rate of 115.

The ethnic composition of the U.S. border region differs substantially from the national average for the United States. In the year 2000, about 40 percent of the U.S. border population was of Hispanic origin, primarily of Mexican ancestry. For the United States as a whole, 12.5 percent of the population was of Hispanic origin. The proportion of Hispanics generally declines as one moves from east to west along the U.S. border. In the Texas border area, 84 percent of the

population is Hispanic, however the proportion Hispanic is only 27 percent in Arizona and 31 percent in California.

Income, Education and Poverty Status

Although the border region historically has been characterized as an area suffering from poverty and a lack of economic development, this is not uniformly the case. First, while many parts of the U.S. border region are significantly poorer than the United States as a whole, the northern border of Mexico is one of the wealthier regions of Mexico. Second, the border regions of both countries include a mix of very poor and relatively affluent areas.

The U.S. border region includes some of the poorest counties in the United States. Starr County, Texas, for example, had a 1997 estimated per capita income less than 40 percent of the national average, with 56 percent of its residents living below the poverty level. Three of the border counties are among the 10 poorest counties in the United States. Overall, about 19 percent of the border population lives below the poverty level, as compared to 13 percent for the entire country. Economic conditions are worse in the eastern half of the border, with 24 percent of border residents living below the poverty level in New Mexico and 33 percent in Texas. A combination of poverty and fewer land use restrictions has led to the development of *colonias*, or unincorporated housing developments, particularly in the Texas and New Mexico border counties. Many *colonias* lack running water and access to public sewer systems or to compliant septic tanks. Yet on the other end of the economic scale, the U.S. border includes Maricopa and San Diego counties, with per capita incomes above the national average and less than 15 percent of residents below the poverty level.

The major border cities of Mexico have favorable socioeconomic conditions, as measured by Mexico's marginalization index. This index combines information on education, housing and income, and then ranks *municipios* and states in five categories ranging from lowest to highest socioeconomic standing. In 1998, the ten largest border *municipios* all fell into the most favorable category. Little information is available on smaller border *municipios*, but presumably they would not rank as well. The development of the *maquiladora* industry in the larger border cities has greatly increased employment, but also has swelled the ranks of the very poor by

attracting large numbers of migrants from the poorer regions of Mexico. This has led to the growth of outlying housing developments with poor quality housing and lacking many municipal services such as access to water and sewage systems.

The education level of U.S. border residents is lower than the national average, while the opposite is true for Mexican border residents. Based on a 1990 study of the 11 pairs of border sister communities, 16 percent of U.S. border residents over age 24 had less than 9 years of education as compared to the national average of 10 percent. If San Diego is excluded however, the proportion with less than 9 years of education rises to 30 percent. In the Mexico border region, 23 percent of residents above age 24 have more than 9 years of education, as compared to 19 percent for the entire country. It is difficult to compare education levels across the border, because education systems and reporting categories differ, but the proportion of U.S. border residents with more than 9 years of education is substantially larger than their counterparts in Mexico.

Health Status

Health status in the border region displays many of the complexities and contradictions found in other aspects of life on the border. As compared to U.S. national figures, U.S. border residents fare well in terms of mortality despite significant levels of poverty, but suffer from poor access to health care. Mexican border residents have higher overall mortality than does Mexico as a whole, despite relatively favorable living conditions. The Mexico border region has higher mortality than the U.S. border for communicable diseases as well as many chronic diseases. The information provided below is limited to the 11 pairs of sister communities located on the U.S.-Mexico border.

Mortality

It is not possible to directly compare death rates in the U.S. and Mexico, because the risk of dying is largely a function of age, and the population of Mexico is so much younger than the population of the United States. For example, the overall death rate for the United States (872

deaths per 100,000 population in 1995-97) was much higher than the Mexico rate of 465, even though U.S. mortality was lower at every age. It is possible to eliminate this age difference with a technique called standardization or age-adjustment, which removes the effect of differences in age between two populations.⁰ Using this technique, the age-adjusted death rate for Mexico is 638 and the U.S. rate is 575.

The age-adjusted death rate in 1995-97 for the U.S. border region was 491 per 100,000 population, which was substantially lower than the U.S. national rate of 575 (see Figure B). This difference was largely due to lower mortality in the border region for chronic diseases such as cancer and heart disease. Infant mortality was also lower for the U.S. border than for the nation, despite lower socioeconomic conditions on the border. However, higher mortality rates for U.S. border residents were reported for diabetes, chronic liver disease and cirrhosis, and other diseases.

In Mexico, the age-adjusted death rate for the border population was 677 per 100,000, which was higher than the national mortality rate of 638. In part, this is an example of the double burden of disease: while the border population had somewhat lower mortality for communicable diseases, border residents had higher mortality for many chronic conditions such as cancer, diseases of the heart, and diabetes, as well as external causes of death. Infant mortality on the border was higher than for Mexico as a whole, again despite higher socioeconomic conditions on the border.

Comparing the border regions of the U.S. and Mexico, mortality was lower on the U.S. side of the border: the age-adjusted mortality rate was 491 per 100,000 for U.S. border residents, and 677 for the Mexico border area. Mortality due to cancer was lower for Mexico border residents, but U.S. residents had lower rates for communicable diseases and injuries, as well as chronic diseases such as diseases of the heart, chronic obstructive pulmonary disease, and diabetes. Infant mortality was also substantially lower on the U.S. side of the border.

Source: Mexico: Mortality Profiles of Sister Communities on the United States-Mexico Border, PAHO, 2000; United States: National Center for Health Statistics, CDC.

^{0*} The technique used here, the direct method of standardization, determines what the mortality rate in both countries would be if they had the age distribution of a third population. For the purposes of comparison, the United States and Mexico have agreed to use the age distribution of a standard population developed by the World Health Organization (WHO), referred to as the WHO Old World Standard Population.

Leading causes of death. Information on the leading causes of death in the border region is provided in Table 1. The two primary causes of death on both sides of the border are heart diseases and malignant neoplasms, and the same is true at the national level for both Mexico and the United States. These two causes of death account for a much larger proportion of all deaths on the U.S. side of the border than in the Mexico border region, at 52 percent versus 31 percent. This difference is largely due to the older age of the U.S. border population.

In the U.S. border region, most of the remaining causes of death are diseases of the elderly, with the exception of accidents and HIV. Accidents are the fifth leading cause of death for U.S. border residents, and account for nearly 5 percent of all deaths. The principal component of accident mortality is deaths due to motor vehicle crashes. HIV is the tenth leading cause of death, accounting for 1.4 percent of the total. Suicide is the cause of 1.7 percent of U.S. border deaths, or nearly twice the 1 percent level of suicide deaths on the Mexico side of the border.

Table 1. Leading Causes of Death, U.S.-Mexico Border, 1995-97

Mexico Border		U.S. Border	
Cause of Death	Percentage	Cause of Death	Percentage
1. Diseases of the heart	18.7	1. Heart	29.1
2. Malignant neoplasms	12.3	2. Cancer	23.1
3. Accidents	10.6	3. Stroke	7.0
4. Diabetes mellitus	9.5	4. COPD	5.2
5. Cardiovascular diseases	5.3	5. Accidents	4.8
6. Homicide	4.2	6. Pneumonia and influenza	4.1

7. Chronic liver disease and cirrhosis	3.9	7. Diabetes mellitus	3.1
8. Pneumonia and influenza	3.6	8. Chronic liver disease and cirrhosis	1.8
9. COPD	2.9	9. Suicide	1.7
10. Nephritis and nephrosis	2.2	10. HIV	1.4
Congenital Anomalies	2.2	Homicide	1.1
Suicide	1.0	Congenital Anomalies	0.8
HIV	1.4	Nephritis and nephrosis	0.8

Source: Mexico: Mortality Profiles of Sister Communities on the United States-Mexico Border, PAHO, 2000; United States: National Center for Health Statistics, CDC.

In the Mexico border area, accidents are an even more important cause of death, ranking third among the leading causes of death. Here again motor vehicle crashes are the most important cause of accident deaths. However, diabetes mellitus accounts for nearly 10 percent of all deaths, or more than three times the level of diabetes deaths on the U.S. side of the border. Homicide is the sixth leading cause of death, representing 4.2 percent of all deaths as compared to 1.1 percent of deaths in the U.S. border area. Other important differences include chronic liver diseases and cirrhosis, the cause of nearly 4 percent of Mexico border deaths versus 1.8 percent of U.S. border deaths; and nephritis and nephrosis, which accounts for 2.2 percent of border deaths in Mexico and 0.8 percent of U.S. border fatalities. HIV is not listed as a leading cause of death in the Mexico border area, but it accounts for the same percentage of deaths as in the U.S. Other important causes of death among Mexico border residents are nutritional deficiencies (1.7 percent of all deaths) and intestinal infectious diseases (0.9 percent).

Maternal mortality. The maternal mortality rate is defined as the number of deaths, per 100,000 live births, that occur due to complications of pregnancy, childbirth and the purpureum (the period 42 days after birth). Maternal mortality in the Mexico border region is more than 3 times

the U.S. border rate, at 22.1 deaths per 100,000 versus 6.3 on the U.S. side. The maternal mortality rate does not capture all maternal deaths, because it excludes deaths to pregnant women due to other causes as well as deaths occurring more than 42 days after birth.

Infant mortality. The 1998 infant mortality rate is estimated at 17.1 deaths per 1,000 live births in the border region of Mexico, compared to an estimated national infant mortality rate for Mexico of 15.8. The higher infant mortality rate in the border area, despite better economic conditions, may be due to higher mortality among recent immigrants to the border area. The infant mortality rate for the U.S. border sister communities in 1998 is 5.5 per 1,000 live births, substantially below the national infant mortality rate of 7.2.

Morbidity

In Mexico, the rates of some communicable diseases are higher on the border than for the nation as a whole. For example, the incidence of new tuberculosis cases in 1995 in the Mexico border states was 27 per 100,000 population, versus the Mexican national rate of 18.8. Higher border rates were also reported for HIV/AIDS and for dengue fever. Information for the Mexico border states for 1999 indicates that the incidence of hepatitis A, at 27 per 100,000 population, was higher than the national rate of 20. Higher border rates also were reported for tuberculosis, at 25.5 per 100,000 versus 17.2 for all of Mexico, and HIV/AIDS, at 4.6 for the border states versus 4.1 at the national level.

In the U.S. border region, 1998 infectious disease rates were significantly higher than the national rates for a variety of diseases, including brucellosis, hepatitis A, measles, mumps, pertussis, botulism, salmonellosis, shigellosis, and others. The incidence of AIDS cases on the U.S. border was about 20 percent below the national AIDS rate, the incidence of gonorrhea in the border region was about one-third the national level, and the incidence of syphilis on the border was one-quarter the national rate. However, the tuberculosis incidence rate for the border was about twice the U.S. rate, the border hepatitis A rate was more than 3 times the national rate, and the incidence of waterborne infectious diseases in general was much higher on the U.S. border than for the U.S. as a whole.

Incidence rates for several communicable diseases were higher in the 6 Mexican border states than on the U.S. side of the border. The incidence of cholera, malaria, and dengue fever were close to zero in the U.S. border region in 1995, while the equivalent rates for the Mexico border states were 4.7 for cholera, 3.3 for malaria, and 66.7 for dengue fever. The number of tuberculosis cases per 100,000 inhabitants was 25.5 for the Mexico border in 1999, versus 12.9 in the U.S border area in 1998. However, the incidence of AIDS cases in the Mexico border states in 1999 was less than half the 1998 U.S. border rate, at 6.4 versus 13.8.

The high level of border crossings between the U.S. and Mexico complicates the development of strategies to address the spread of infectious diseases. The thousands of border crossings each day underline the potential for the spread of diseases in both directions. Under these circumstances, the United States and Mexico must coordinate their strategies by developing a binational response to the spread of infectious diseases.

Mexico has been very successful in one response to infectious diseases: it has raised the childhood immunization rate for the basic schedule of vaccinations to more than 95 percent for the Mexican border states. Just as important, Mexico has been successful in keeping the coverage rate at this level for several years. Information on vaccination levels in the U.S. border region is very incomplete, but the most recent national data indicate that the upward trend in coverage for the combined series of vaccinations was reversed in the year 2000 and remains below 80 percent.

Chapter 4: Healthy Border 2010 Objectives

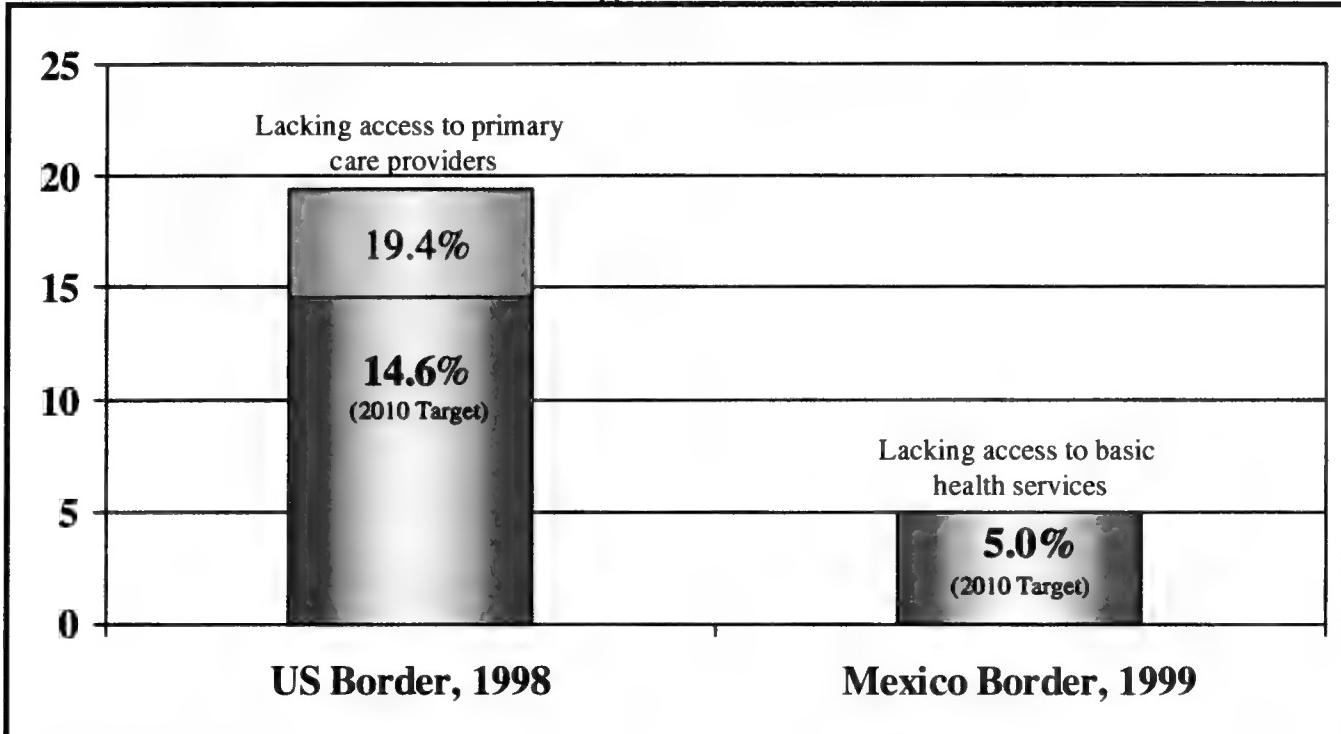
Access to Care

Access to quality health care is essential to improving the health of border residents. Access to care is required for individuals to obtain preventive health services such as immunizations, regular Pap tests, or early prenatal care. Effective primary care can also educate people about modifiable risk factors such as smoking. Residents with chronic diseases require health care access for effective management of conditions such as diabetes or hypertension.

In the United States, predictors of access to care can include having health insurance, as well as having a regular primary care provider or other source of ongoing health care. Use of preventive care services, such as early prenatal care, also can serve as a measure of access to care. An important related issue is access to regular dental health care services.

In Mexico, the existing health care system provides nearly complete access to care, whether through the Social Security system (financed by the government, employers, and workers) or through services provided for the uninsured population (the “open population”) which are financed entirely by the government. Provision of health services has been extended in recent years through the use of mobile health units. Nevertheless, a small proportion of the Mexican population lacks access to basic health services, primarily because they reside in remote locations far from any government health services.

Percent of Persons Lacking Access to Health Care



Source: United States: Bureau of Primary Health Care, Health Resources and Services Administration; Mexico: Secretariat of Health.

U.S. objective: Mexico objective:

- Reduce by 25 percent the proportion lacking - Maintain at less than 5 percent the population access to a primary provider in underserved areas. lacking access to basic health services.

Access to Care on the U.S.-Mexico Border

Access to care is an important issue on the U.S.-Mexico border. Low rates of health insurance coverage, combined with low incomes, have put regular access to quality health care beyond the reach of many U.S. border residents. Many U.S. residents cross the border into Mexico in search of health care, in order to take advantage of lower costs, to seek out Spanish-speaking care providers, or for other reasons. Some Mexican residents enter the United States to seek care, particularly for high-technology care or obstetric care. Using existing data sources, it is not possible to measure the number of persons crossing the border to seek health care.

On the U.S. side of the border, primary care providers are lacking in many border communities. Counties are designated as medically underserved for primary care when the ratio of primary care physicians to population drops below a threshold level. Many U.S. border counties are considered medically underserved, particularly in Texas and New Mexico. Increasing the

number of primary care providers within these underserved areas is fundamental to improving access to care.

Another factor affecting access to health care in the U.S. is lack of health insurance. Even in areas with sufficient numbers of physicians, persons lacking health insurance are less likely to obtain preventive care or to have routine physical examinations. In the border region of Texas, an estimated 30 percent of the population does not have health insurance; in the California border communities of San Diego and Imperial Counties, about 25 percent lack health insurance.

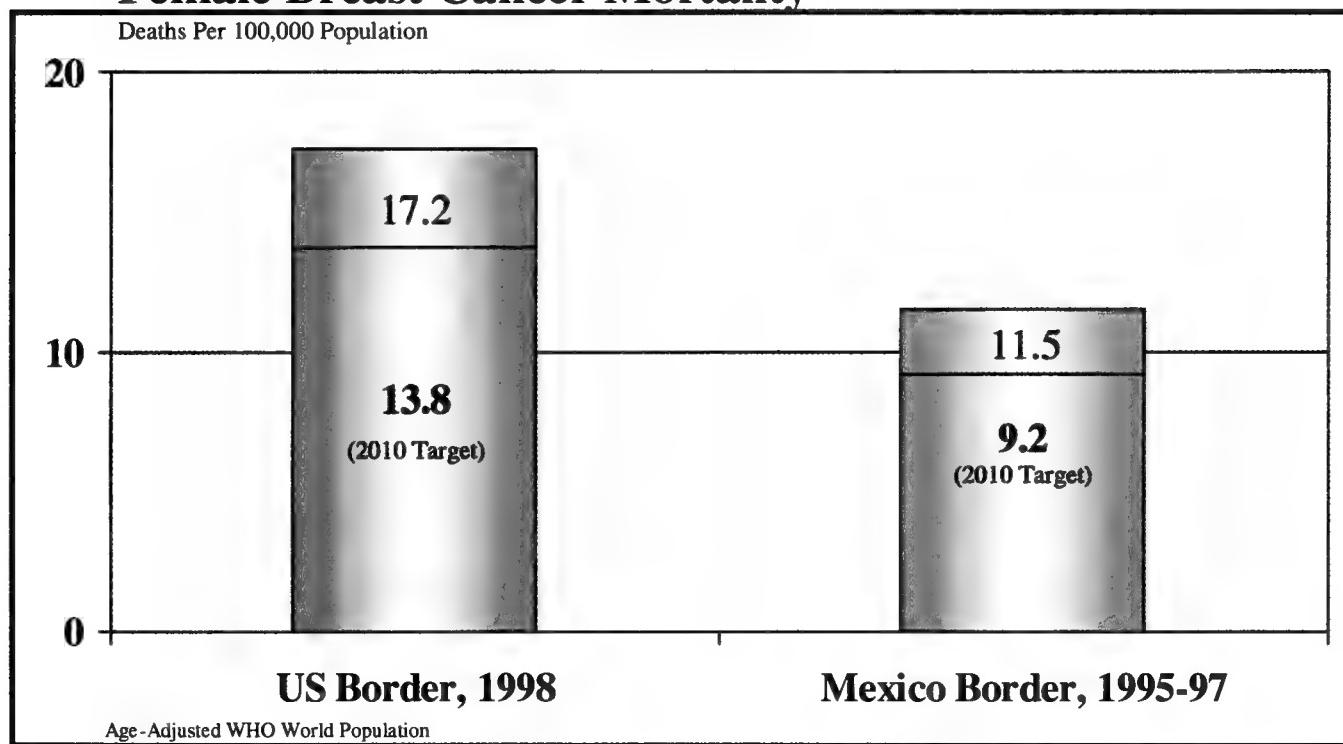
The Mexico border region represents the most industrialized part of the country. Because of the high level of industrial employment, particularly in the *maquiladora* industry, 61 percent of the border population has access to employer-based health services through the Social Security system. Nevertheless, the impoverished population of the border region continues to grow, largely due to the constant stream of migrants from other regions of Mexico. These marginalized people, largely unemployed and residing in areas with no municipal services, represent the “open” population whose only access to health care is through the services funded completely by the Secretariat of Health. Government programs have extended health care services to many in the “open” population, but gaps in access remain. Currently about 5 percent of the total border population lack access to regular health care services, although they may receive services from special programs such as childhood immunization.

Cancer

Cancer is the second leading cause of death in the border region, just as it is for both Mexico and the United States. Each year, more than 20,000 border residents die from cancer, with about 3,000 deaths in Mexico and more than 17,000 in the U.S. border area. The age-adjusted cancer death rate was 91.2 per 100,000 in the Mexico border region in 1995-97, and 106.3 in the U.S. border region in 1998.

The most important cancer sites or types, in terms of cancer mortality, are lung cancer, colorectal cancer, and breast and prostate cancers. Survival rates for most cancers are significantly improved through early detection and treatment. Improved screening for cancer is essential to reduce the cancer death rate.

Female Breast Cancer Mortality



Source: Mexico: Mortality Profiles of Sister Communities on the United States-Mexico Border, PAHO, 2000; United States: National Center for Health Statistics, CDC.

U.S. objectives:

- Reduce female breast cancer death rate by 20 percent
 - from 17.2 to 13.8 per 100,000 (World standard)
 - from 25.4 to 20.3 (U.S. 2000 standard)
- Reduce cervical cancer death rate by 30 percent and uterus by 20 percent
 - from 2.2 to 1.5 per 100,000 (World standard)
 - from 3.0 to 2.1 (U.S. 2000 standard)

Mexico objectives:

- Reduce female breast cancer death rate by 20 percent
 - from 11.5 to 9.2 per 100,000 (World standard)
 - from 19.0 to 15.2 (Mexico 1990 standard)
- Reduce death rate due to cancer of cervix uteri
 - from 15.6 to 12.5 per 100,000 (World standard)
 - from 20.8 to 16.7 (Mexico 1990 standard)

Cancer Prevalence

The cancer death rate in the border region of Mexico is higher than the national rate for Mexico, because the border region is at a later stage of the epidemiologic transition, or the shift in the leading causes of death from communicable diseases to chronic diseases. U.S. border residents have a lower cancer death rate than the nation as a whole, although the border death rates for certain cancer types are close to or above the national figures. For some cancer types, the diagnosis rate for new cases is higher in the U.S. border region than elsewhere in the United States.

Over the past decade, the cancer death rate for all types has fallen by about 10 percent on the border, with similar declines reported for both the Mexican and U.S. sides. For most cancer types, mortality rates peaked in the early 1990s, and then declined.

Healthy Border 2010 objectives include reducing the rates of female breast cancer and cervical cancer. Female breast cancer is one of the most important cancers for border women. In the United States, the diagnosis of new cases of breast cancer is increasing among Hispanics. Cervical cancer is an issue on both sides of the border, although the mortality rate is substantially higher in Mexico than in the United States. The 1998 death rate for cervical cancer in the U.S. border region was 2.2 per 100,000 population, while the death rate due to cervical and uterine cancer in the Mexico border region was 15.6 in 1995-97. On both sides of the border, survival rates suffer because screening deficiencies lead to the diagnosis of cervical cancer at later stages of development.

Cancer Screening and Prevention

Several types of cancer could be prevented by changes in behaviors or dietary habits. As many as 50 percent of all cancers could be prevented through:

- smoking cessation
- eating more fruits and vegetables
- more physical activity
- weight control.

Equally vital in the fight against cancer is screening for early detection and treatment. In the border region, both breast cancer and cervical cancer are often diagnosed at later stages of development. Detection can be improved through mammograms and breast self-examinations for breast cancer, and through Pap smears for cervical cancer. Enhancing the access of border residents to routine health care services is a key element in reducing cancer mortality.

Prevention and early detection of cancer require various types of resources. First is the need to provide culturally and linguistically appropriate information on prevention, early detection, and treatment to the public and to health care professionals. Second, the public must have access to preventive and diagnostic services as well as treatment.

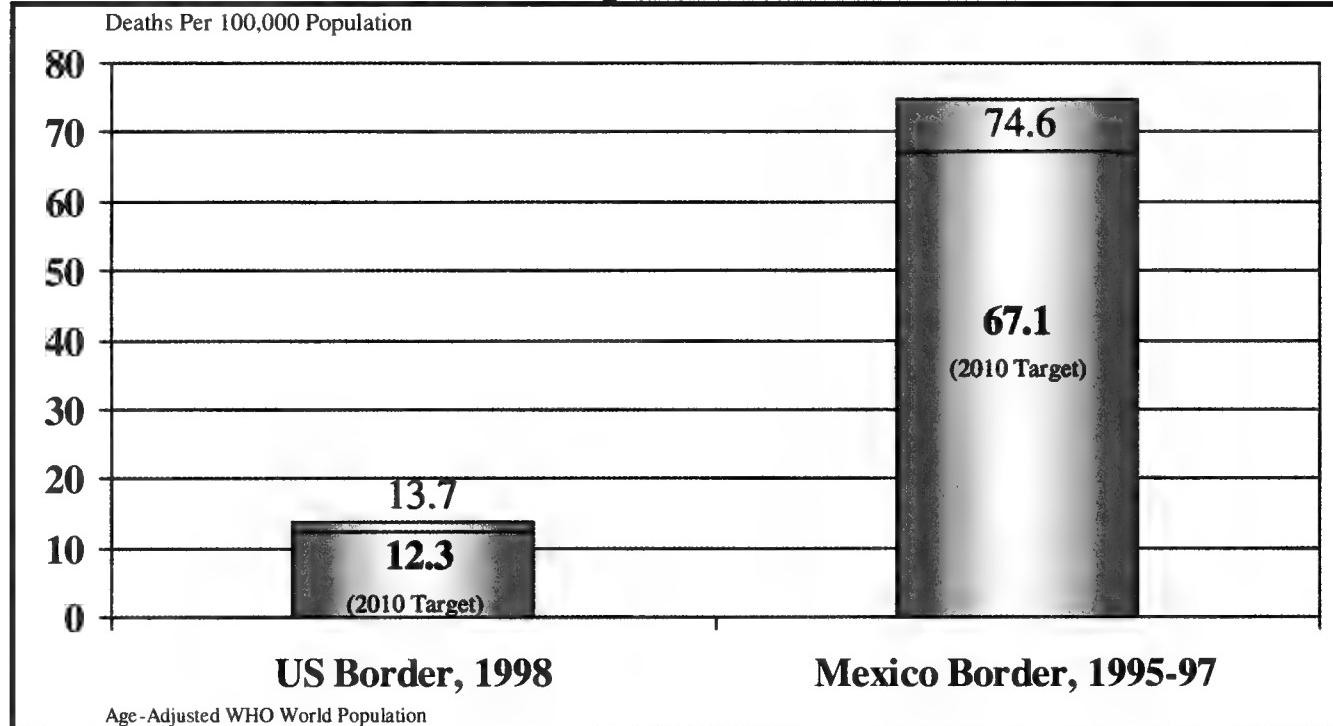
Diabetes

Diabetes is a major health concern in both Mexico and the United States. Nearly 5,000 border residents die each year due to diabetes, with about 2,300 fatalities in the United States and about 2,500 in Mexico. In addition, this disease causes significant complications among survivors. The number of new cases of diabetes increases yearly, but a significant number of border residents with diabetes remain undiagnosed.

The age-adjusted death rate due to diabetes was 13.7 per 100,000 for U.S. border residents in 1998, and 74.6 for the Mexico border in 1995-97. Diabetes morbidity is also a significant

problem for both countries. The hospitalization rate (discharges per 100,000 population) for diabetes was 25.6 for the Mexico border region, while complete information on hospital discharges is not yet available for the border area of the United States.

Diabetes Mortality



Source: Mexico: Mortality Profiles of Sister Communities on the United States-Mexico Border, PAHO, 2000; United States: National Center for Health Statistics, CDC.

U.S. objectives:

- Reduce death rate by 10 percent
- from 13.7 to 12.3 per 100,000 (World standard)
- from 23.3 to 21.0 (U.S. 2000 standard)
- Reduce hospital admissions by 25 percent
- Data not yet available 25.6 per 100,000 population

Mexico objectives:

- Reduce death rate by 10 percent
- from 74.6 to 67.1 per 100,000 (World standard)
- from 53.6 to 48.2 (Mexico 1990 standard)
- Keep hospital admissions stable at

Impact of Diabetes

Diabetes is a leading cause of death in both countries, and is even more common as a contributing rather than underlying cause of death. Among survivors, diabetes is a costly disease to manage, particularly if hospital care is required. Complications of diabetes result in impaired quality of life and substantial disability, including amputations, blindness, and end-stage renal disease.

Prevalence of Diabetes

The growing prevalence of diabetes is the result of a number of trends, including improper nutrition and obesity, aging of the population, and growth of population groups with a predisposition to develop diabetes. The first two factors are present on both sides of the border. In addition, rapid growth of the population of Hispanic or Native American origin, both with a predisposition to diabetes, is an important factor on the United States border. In both countries the numbers of newly diagnosed cases of Type 2 (adult onset) diabetes in children is growing, largely because of a rapid increase in the level of childhood obesity.

Despite the growing number of diabetes cases identified annually, a large proportion of persons with diabetes remains undiagnosed. In the United States, an estimated one-third of diabetics have not been detected. The proportion of undiagnosed diabetics is likely to be larger in the border region, because of a greater predisposition to diabetes in this population as well as poorer access to quality health services.

Diabetes Prevention and Diabetes Management

Access to health care, health education and health promotion activities can reduce the growth of Type 2 (adult onset) diabetes by improving nutrition and increasing physical activity, thereby reducing the prevalence of overweight and obesity. At the present time however, most interventions designed to modify individual behaviors have had limited success.

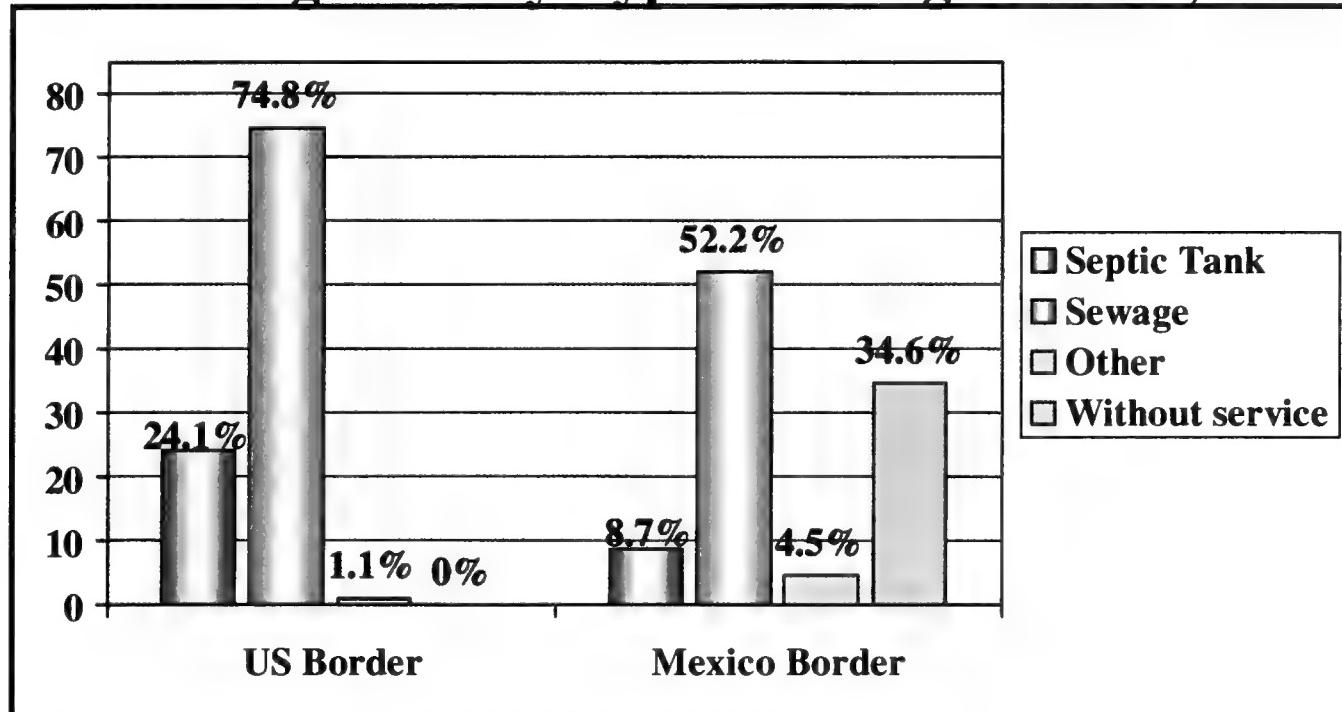
Access to health care also can have a major impact on the management of diabetes. Secondary prevention techniques, including the control of glucose, lipid, and blood pressure levels have demonstrated health and economic benefits. Screening for early diabetes complications, including eye, foot and kidney abnormalities (also known as tertiary prevention) also has positive health and economic benefits. These secondary and tertiary prevention activities are often not incorporated in daily clinical management of diabetes. An additional obstacle to effective management is modification of the behavior of persons with diabetes.

Environmental Health

Human exposures to hazardous agents in the air, water, soil and food, and physical hazards in the environment, are major contributors to illness, disability and death worldwide. The U.S.-Mexico border faces imposing environmental challenges arising from the complex interplay of rapid industrialization, strong population growth, and poverty.

Major environmental health issues in the border region include water quality, toxic substances, and air quality. A significant proportion of households on the border are not connected to public water systems, compliant public sewage systems or septic tanks, thus potentially exposing border residents to contaminated water. Pesticide exposure is another concern, owing to intensive agricultural activity in the region, as well as household use of pesticides. Excessive ozone levels on the border are an important air pollution problem that has been linked to asthma and other respiratory conditions.

Housing Units by Type of Sewage Service, 1990



Source: Sister Communities Health Profiles: U.S.-Mexico Border, 1989-91. USMBHA, 1994.

U.S. objectives:

- Reduce to zero the proportion of households not connected to compliant public sewage systems
- Reduce hospital admissions for acute pesticide poisoning by 25 percent

Mexico objectives:

- Reduce the proportion of households not connected to compliant public sewage or septic tank systems or septic tanks
- Maintain hospital admissions for acute poisoning at a rate of 0.1 per 100,000

A Binational Issue

Increasingly, environmental problems are being characterized as international in scope and this is certainly true for the U.S.-Mexico border region. Pollutants and contaminants that arise on one side of the border can easily affect the air, water, soil and residents of the other side. In some cases benefits or savings in one nation can inadvertently create major problems or costs in the other. Major industrial development in the region by U.S., Mexican and multinational corporations is only increasing the environmental challenge. The complexity of these environmental concerns calls for a coordinated and binational approach at all levels of government.

Environmental Trends

Water pollution is a growing concern in the border region. Rapid population growth has surpassed the existing capacity of water systems, sewage systems, and wastewater treatment facilities in many border communities. Water quality problems have been compounded by the growth of industrial waste production and agricultural runoff. Some of this infrastructure gap has been addressed in recent years by the construction of new municipal water treatment plants and government programs to fund household septic tank systems. Nevertheless, major infrastructure investments by both countries will be required into the future, particularly if industrial growth and population growth trends continue.

Border residents are increasingly concerned about exposure to toxic substances, including acute pesticide exposure. Yet information on toxic substances is far from complete for many areas of the border. Mexico tracks the number of hospital admissions for acute pesticide exposure, but not all U.S. border states do so at the present time. Information on pesticide exposures that do not result in hospital admissions is even more incomplete. Health authorities in some areas are beginning the systematic investigation of all reported acute pesticide exposures.

Improving Environmental Quality

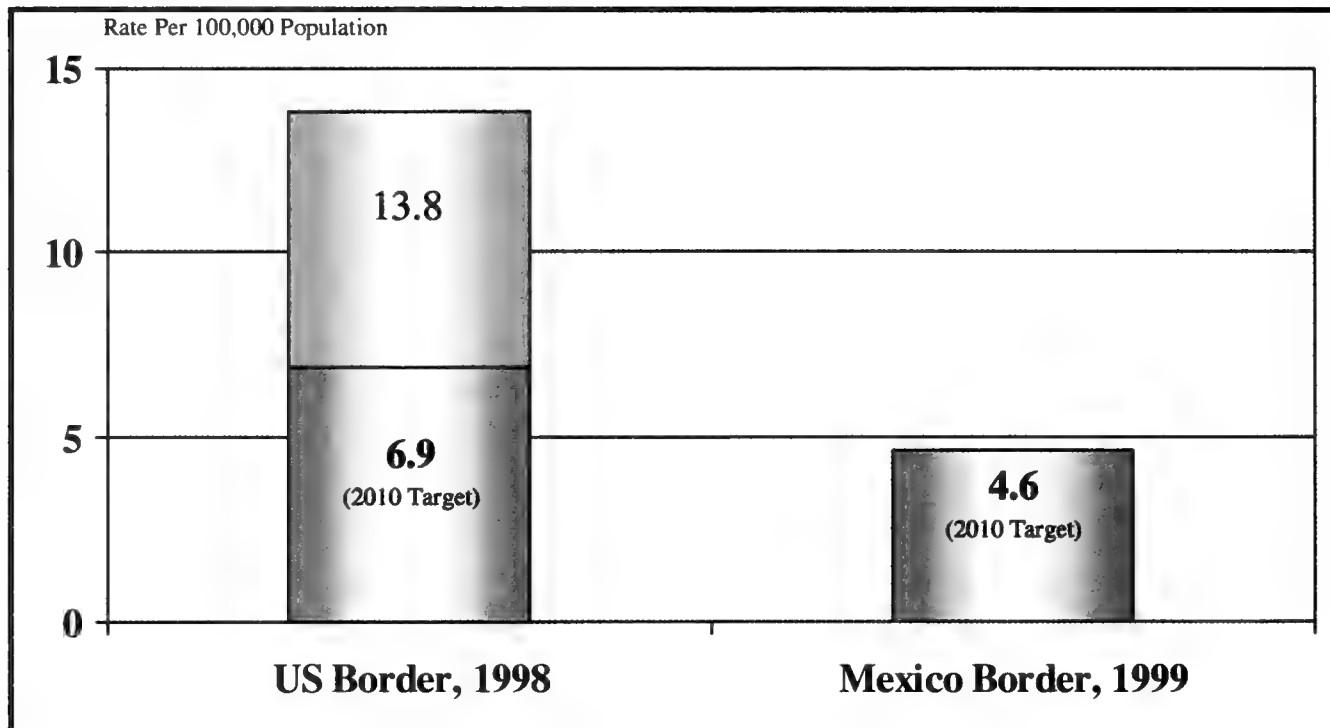
The need for a coordinated binational effort to address environmental issues led to the La Paz Agreement of 1983, under which Mexico and the United States established 6 working groups to address environmental issues in the border region. This was followed by the U.S.-Mexico Border XXI Environmental Health Workgroup in 1996, which has promoted federal and state collaboration as an important part of binational cooperation in improving the environment. Other efforts to improve the environment and health along the border have come from state and local environmental health councils, and non-governmental organizations. All of these groups can play important roles in detecting environmental health issues, promoting public awareness of the problems, and devising solutions.

HIV/AIDS

HIV/AIDS is a major cause of illness and death in the United States, and is growing rapidly in importance in Mexico. At the present time, HIV/AIDS is no longer restricted to specific population groups: HIV infection and AIDS have been reported in almost every age and socioeconomic group, and in all large cities on the U.S.-Mexico border. As with all other communicable diseases, HIV/AIDS transmission is not restrained by political boundaries.

In 1998, more than 800 new cases of AIDS were reported in the U.S. border region, or an incidence of 13.8 per 100,000 inhabitants. In the six border states of Mexico, the HIV/AIDS incidence was only 4.6 per 100,000, about one-third the U.S. rate. Information on HIV infection is not currently available for all U.S. border states.

AIDS Case Rate



U.S. objectives:

- Reduce incidence of diagnosed HIV cases by 50 percent

Mexico objectives:

- Maintain HIV prevalence rate at 1999 level of 4.6 per 100,000 population.

Levels and Trends of HIV/AIDS

There are significant differences in the pattern of the HIV/AIDS epidemic between the United States and Mexico. The explosive growth of HIV infection in the United States during the 1980s gave way to a stable infection rate beginning in the early 1990s. The development of antiretroviral treatment therapies in the mid-1990s led to a dramatic decline in the development of AIDS and in deaths due to AIDS in the United States. In Mexico, the number of AIDS cases grew rapidly in the 1980s and early 1990s, reaching an annual incidence rate of 4.6 per 100,000 population in 1992. Since that peak the national incidence rate has slowly declined to a rate of 4.1 in 1998.

The spread of HIV infection and AIDS also has differed in the border region. In 1990, one of the major health differences between the U.S. border area and the United States as a whole was in the level of AIDS cases and deaths. Excluding major cities such as San Diego or Phoenix, the AIDS death rate on the U.S. border was one-third the U.S. national rate. The AIDS death rate has declined in the U.S. border region since the mid-1990s, but not as rapidly as the national trend. As a result, the incidence of AIDS in the border region (exclusive of larger cities) is now closer to the national level than before.

On the Mexico side of the border, the situation is the opposite of the U.S. border region. Mortality due to HIV/AIDS is substantially higher in the Mexico border area than for Mexico as a whole, and the border death rate has been increasing at a faster pace. While the national death rate due to HIV/AIDS grew from 1.9 to 4.3 from 1990 to 1999, the border rate rose from 1.6 to 6.8 deaths per 100,000 inhabitants in the same period.

Impact and Prevention of HIV/AIDS

Despite recent advances in treatment, HIV/AIDS continues to impose a major burden in the form of illness, disability, and death. New therapies have reduced the AIDS death rate in the border region, but the cost of these medications has put them out of reach for certain segments of the population. Recent U.S. estimates of the lifetime cost of health care associated with HIV have

grown from US\$55,000 to US\$155,000 or more. In this context, HIV prevention becomes even more cost-effective. In the United States, the AIDS Drug Assistance Program (ADAP) provides funding for drug treatment for HIV. Funding for this program has increased by more than 1,000 percent from 1996 to 2001. Eligibility for the program is based on income level, with the eligibility standard varying from 200 percent of the federal poverty level in Texas to 400 percent in California.

HIV prevention requires a broad range of medical and counseling services, accompanied by information, education and other activities. Many strategies have been developed to reduce the spread of HIV infection, including the promotion of safer sex practices and the reduction of needle sharing. In addition, HIV counseling, education and information should be appropriate for local cultures and languages. An important issue however, is access to care, as knowledge of HIV status is a key part of halting the transmission of HIV. One of the major barriers to care is the lack of HIV trained providers on both sides of the border.

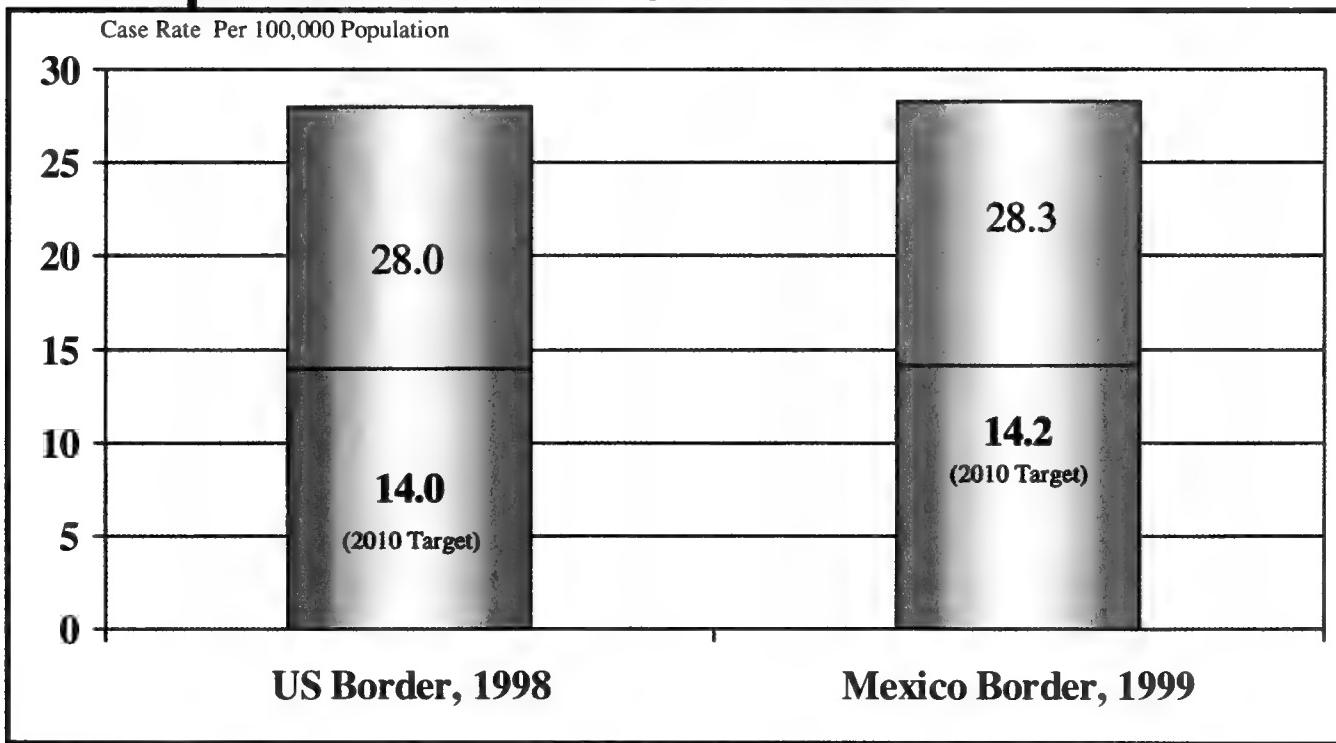
Immunizations and Infectious Diseases

Infectious diseases are major causes of illness, disability, and death in both Mexico and the United States. The U.S.-Mexico border presents special challenges for the prevention and treatment of infectious diseases, because of the mobility of the population and the need to coordinate two national strategies for prevention, diagnosis, testing, reporting, and treatment.

In 1998, the incidence rate for hepatitis A was 25.2 per 100,000 population in the U.S. border region, and 27.0 on the Mexico side of the border. The 1998 incidence rate for tuberculosis was 12.9 for the U.S. side of the border, and 25.5 for the Mexico side in 1999.

Vaccination coverage rates in early childhood are near 100 percent in Mexico, including the area bordering the United States. Vaccination coverage is significantly lower in the United States,

Hepatitis A and B Case Rate



including the U.S. border region, although vaccination levels have risen sharply in the U.S. in recent years.

Sources: Mexico: General Directorate for Epidemiology, Secretariat of Health; United States: National Center for Infectious Diseases, CDC.

U.S. objectives:

- Achieve and maintain immunization coverage of 90 percent for children 19-35 months of age
- Reduce incidence of hepatitis A by 50 percent
- from 25.2 to 12.6 per 100,000 population
- Reduce incidence of hepatitis B by 30 percent
- from 2.9 to 1.5 per 100,000
- Reduce incidence of tuberculosis by 50 percent
- from 12.9 to 6.5 per 100,000

Mexico objectives:

- Maintain current immunization coverage rate for children age 1 year and age 0-4 years
- Reduce incidence of all types of hepatitis by 50 percent
- from 28.3 to 14.2 per 100,000 population
- Reduce incidence of tuberculosis by 10 percent
- from 25.5 to 23 per 100,000

Impact of Infectious Diseases

The direct and indirect costs of infectious diseases are significant in both countries. In addition to the cost of lost productivity due to illness or death, the cost of direct medical treatment can be substantial. If diagnosis and treatment of infectious disease cases are delayed, treatment costs can rise by a factor of 40 or more. This is particularly true for the treatment of drug-resistant tuberculosis.

Vaccines can result in significant cost savings. For vaccine-preventable diseases, vaccination can produce medical expenditure savings nearly equal to the cost of vaccination, and indirect savings related to lost productivity can be much larger than the treatment savings. In the United States, savings are estimated to be as high as \$24 for every dollar spent on diphtheria-tetanus-pertussis vaccination.

Prevalence of Infectious Diseases

For many infectious diseases, incidence rates for the U.S. border region are significantly higher than U.S. national rates. This is true for vaccine-preventable diseases (measles, mumps, pertussis), waterborne diseases (salmonellosis, shigellosis), and others such as hepatitis and tuberculosis. The hepatitis A rate in the U.S. border region of 25.2 per 100,000 is nearly 3 times

the national rate of 8.6. In Mexico, the incidence of hepatitis A is also higher in the border region than for the entire country, at 27 versus 19.6 per 100,000.

Tuberculosis represents one of the re-emerging infectious diseases in both the U.S. and Mexico. The difficulties in completing treatment of tuberculosis cases on the border, related to the ease of movement across the border, has contributed to the growth of drug-resistant tuberculosis in both countries. On the U.S. side of the border, the incidence of tuberculosis has declined over the past decade but remains roughly double the national rate. The tuberculosis rate for the Mexico border region is greater than the Mexican national rate (25.5 per 100,000 versus 17.2), but the difference is not as large as in the United States. Within the Mexico border region, certain states have very high rates of tuberculosis, including Tamaulipas (34.5) and Baja California (33.8), while Chihuahua and Coahuila have much lower rates (19.0).

Communicable disease data from Mexico and the United States are not entirely comparable, due to national differences in diagnosis, testing, and reporting for many infectious diseases. The Border Infectious Disease Surveillance (BIDS) project, developed by CDC in coordination with the Secretariat of Health of Mexico and state and local health authorities, will address many of these comparability problems.

Prevention and Treatment

A coordinated strategy is required to detect, control, and prevent infectious diseases. For vaccine-preventable diseases, the strategy is clearly to maximize the vaccination coverage rate in the at-risk population. This will require improvements in delivery services, reduction of financial burden, increased community participation, increased health-related research capacity, and improved monitoring of disease and vaccination coverage. Mexico has done a commendable job of raising the vaccination coverage rate through a multi-faceted program.

Increased vaccination coverage has produced dramatic declines in the incidence of some infectious diseases. For example, measles and mumps cases have decreased significantly in the past decade, in both countries and in the border region. Lower levels of diphtheria, tetanus, and pertussis are also the result of improved vaccination coverage. A vaccine against hepatitis A is

now available and will play an important role in reducing the incidence of this disease in the future.

For diseases that are not preventable or only partially preventable by vaccine, a different approach is required. Reducing tuberculosis rates requires active surveillance, including testing of at-risk populations, providing curative therapy to tuberculosis patients, ensuring that therapy is completed, and investigating close contacts of tuberculosis patients. Lack of access to care, which is an issue on the border, can delay the detection of tuberculosis cases, and impede the direct observation of therapy (DOT) by health care providers. In addition, mobility of the border population, including the ease of border crossings, makes it extremely difficult to ensure that tuberculosis patients complete their therapy. Failure to complete therapy can lead to drug-resistant tuberculosis that is much more difficult and costly to resolve. Reducing tuberculosis rates in this setting requires the cooperation and coordination of local, state, and national tuberculosis programs in both countries. Cooperative efforts include the Ten Against TB program, which coordinates the tuberculosis activities of the ten U.S. and Mexico border states. The U.S.-Mexico Border Health Commission has proposed the development of a TB card that could be used to track migrant tuberculosis cases and ensure completion of therapy.

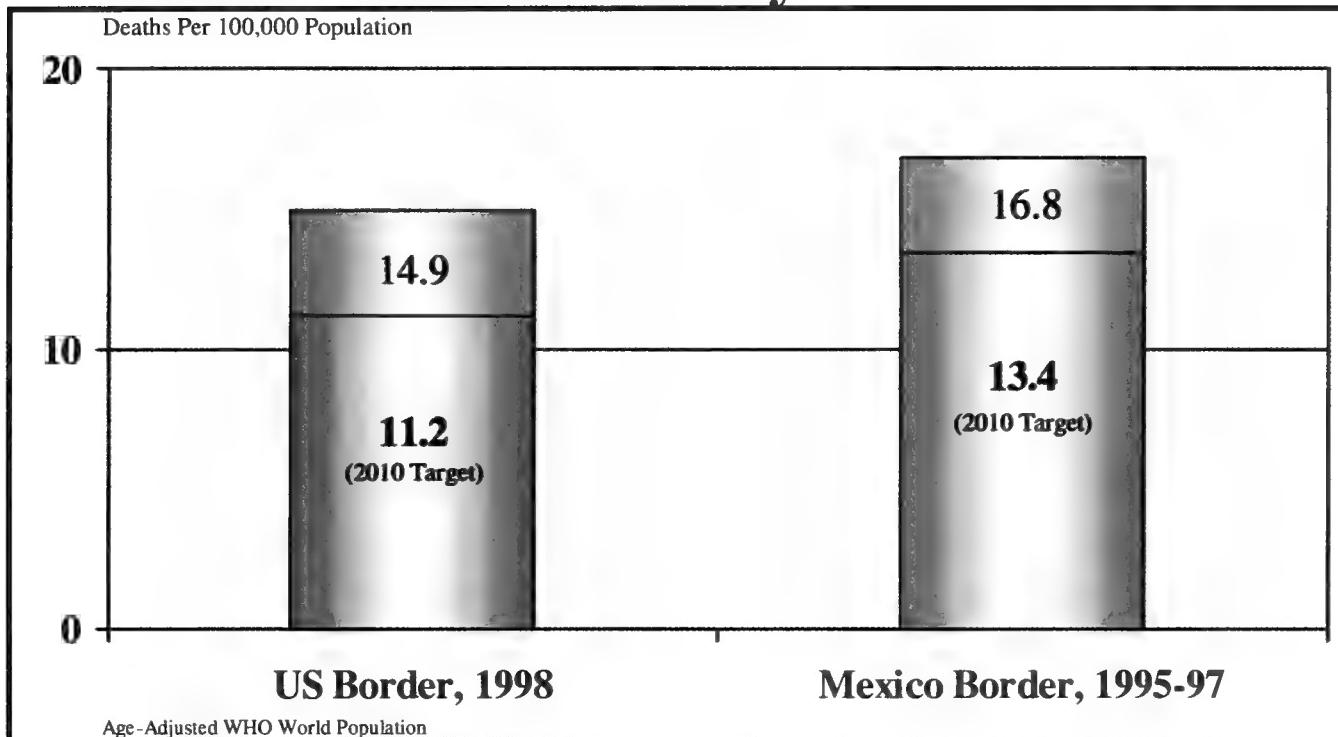
Injury Prevention

Unintentional injury is one of the leading causes of death on the U.S.-Mexico border. About 7,000 border residents die each year from injuries due to motor vehicle crashes, falls, drowning, firearms, poisoning, fires, and suffocation. On the U.S. side of the border, the age-adjusted injury death rate in 1998 was 31 per 100,000 population, while for Mexico border residents the injury death rate was 54.3 from 1995-97.

The most common cause of unintentional injury death is motor vehicle crashes. On both sides of the border, nearly half of all injury deaths are the result of motor vehicle crashes.

Among children under the age of 5, injuries are a leading cause of death, and for children 1-4 years of age injuries are the leading cause of death. The childhood injury death rate is especially high in certain areas along the border.

Motor Vehicle Mortality



Source: Mexico: Mortality Profiles of Sister Communities on the United States-Mexico Border, PAHO, 2000; United States: National Center for Health Statistics, CDC.

U.S. objectives:

- Reduce motor vehicle crash death rate by 25 percent
- from 14.9 to 11.2 per 100,000 (World standard)
- from 16.0 to 12.0 (U.S. 2000 standard)
- Reduce childhood death rate due to unintentional injuries by 30 percent
- from 16.6 to 11.6 per 100,000

Mexico objectives:

- Reduce motor vehicle crash death rate by 20 percent
- from 16.8 to 13.4 per 100,000 (World standard)
- from 11.8 to 9.4 (Mexico 1990 standard)
- Reduce childhood death rate due to unintentional injuries by 50 percent
- from 46.9 to 23.5 per 100,000

Motor Vehicle Crashes

The risk of death due to a motor vehicle crash is greatest among adolescents and young adults (15 to 24 years of age) and in the elderly population (75 or more years of age). Motor vehicle deaths can be prevented by increasing the use of automobile seat belts, reducing the consumption of alcohol by automobile drivers, and by enhanced enforcement of traffic laws (particularly maximum speed limits). The motor vehicle death rate was 14.9 per 100,000 population on the

U.S. side of the border, compared to 16.8 in the Mexico border area.

Within the border region, death rates due to motor vehicle crashes were especially high in the cluster of U.S. counties in eastern California and western Arizona (Imperial, Yuma, and La Paz counties), along with Hidalgo county in the lower Rio Grande valley of Texas. San Diego county in California had one of the lowest death rates due to motor vehicle crashes. In Mexico, the *municipios* with the highest death rates were Agua Prieta and Nuevo Laredo.

Childhood Injury Deaths

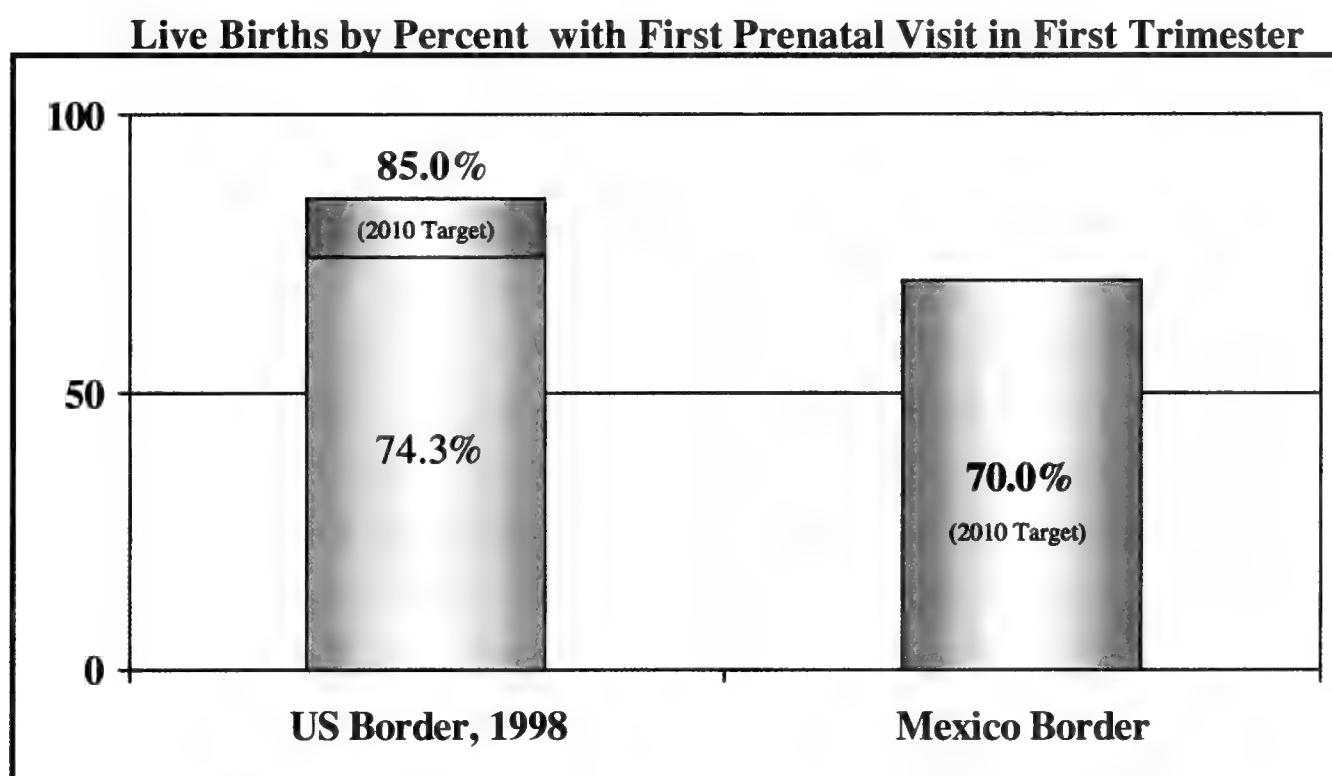
Unintentional injuries are an important cause of death among young children, but particularly so for those 1-4 years of age. Important causes of childhood injury deaths include motor vehicle crashes, drownings, poisonings, and fires. Because these deaths take place at such young ages, childhood deaths have a disproportionate effect on the total number of years of potential life lost (YPLL), an important analytic tool for assessing the impact of various causes of death.

Prevention of childhood injury deaths should first focus on improving compliance with child car seat laws. Although the childhood death rate due to motor vehicle crashes is the second lowest of any age group, motor vehicle accidents still account for one-third of all childhood injury deaths. Other important preventive measures would be restricting unsupervised access to swimming pools or other bodies of water, and improved safeguards against access to household toxic substances by young children.

Maternal, Infant and Child Health

Improving the health of mothers, infants, and children is essential to improve overall health in the border region. The health of a population is reflected in the health of its most vulnerable members, and mothers, infants, and children are both a large and a vulnerable part of the border population. In addition, improving the health of this group lays the foundation for improved health in the next generation.

In 1998, about one-quarter of all U.S. border women who gave birth, or about 48,000 women, did not initiate prenatal care in the first trimester of pregnancy, and some had no prenatal care at all. In Mexico, 65 percent of women without access to the Social Security system initiated care within the first 6 months of pregnancy. Although infant mortality is relatively low, the infant mortality rate due to congenital defects, particularly neural tube defects, is high and should be addressed. Teenage pregnancy is a concern in both countries, but especially in the United States: in 1998, there were more than 10,000 live births to U.S. border women 15-17 years of age.



Source: United States: National Center for Health Statistics, CDC.

U.S. objectives:

- Reduce infant mortality by 15 percent
- from 6.3 to 5.4 per 1,000 live births
- Reduce infant mortality from congenital anomalies by 30 percent
- from 1.6 to 1.1 per 1,000 live births
- Increase the proportion of women beginning prenatal care in first trimester to 85 percent

Mexico objectives:

- Reduce infant mortality by 50 percent
- from 21.2 to 10.6 per 1,000 live births
- Reduce infant mortality from congenital anomalies by 50 percent
- from 2.9 to 1.5 per 1,000 live births
- Increase the proportion of women beginning prenatal care in the first trimester to 70 percent

- Reduce the pregnancy rate among 15-17 year olds by 33 percent
- Reduce the pregnancy rate in adolescents 15-19 years of age by 20 percent

Impact of Maternal, Infant and Child Health Problems

The health problems of infants and children are important precisely because they occur so early in the lives of these persons. The burden of childhood disability is compounded because these individuals will live many more years with their disabling conditions than will persons who become disabled later in life. Infants and children who die will contribute disproportionately to measures of survival such as life expectancy or years of potential life lost. Maternal deaths are significant not only because of the deaths themselves, but because of the impact on their families, particularly on surviving children.

Screening and Prevention

Screening of pregnant women and young children is essential to prevent or mitigate many serious health problems for mothers, infants, and children. Screening as a part of prenatal care can identify many important maternal health conditions or risk factors, including pregnancy-related hypertension and diabetes, cigarette smoking, and others. Many of these maternal conditions are also risk factors for poor infant outcomes. The use of alcohol, tobacco and illegal substances during pregnancy is associated with many developmental problems of infancy and childhood, partly as the result of very low birth weight and premature delivery. Alcohol use during pregnancy is related to a number of poor infant outcomes, particularly fetal alcohol syndrome. Many of these risk factors can be prevented or mitigated by medical interventions or changes in maternal behavior. A large proportion of neural tube defects are preventable, but the intervention requires nutritional supplements prior to conception.

Levels and Trends of Health Problems

The infant mortality rate on the border is surprisingly low given the level of poverty in the region. The low rate is partly because of good birth outcomes among the population of Mexican origin, but reporting problems may also be a factor. The good outcomes include low levels of

low birth weight and premature birth, which are the result of behavioral factors such as low rates of smoking, alcohol, and illegal drug use. In addition, this population enjoys a strong social support network, and maternal factors such as good prepregnancy weight also contribute to good outcomes.

Neural tube defects are an important health issue on both sides of the border. Intensive investigation in the lower Rio Grande Valley of Texas has failed to find any environmental factors associated with the high level of neural tube defects in this area. There is an important genetic component to neural tube defects, but nutritional supplements in the form of folic acid supplements can be effective in lowering the incidence of this congenital anomaly. This preventive strategy has produced positive results in the Mexican border state of Nuevo Leon.

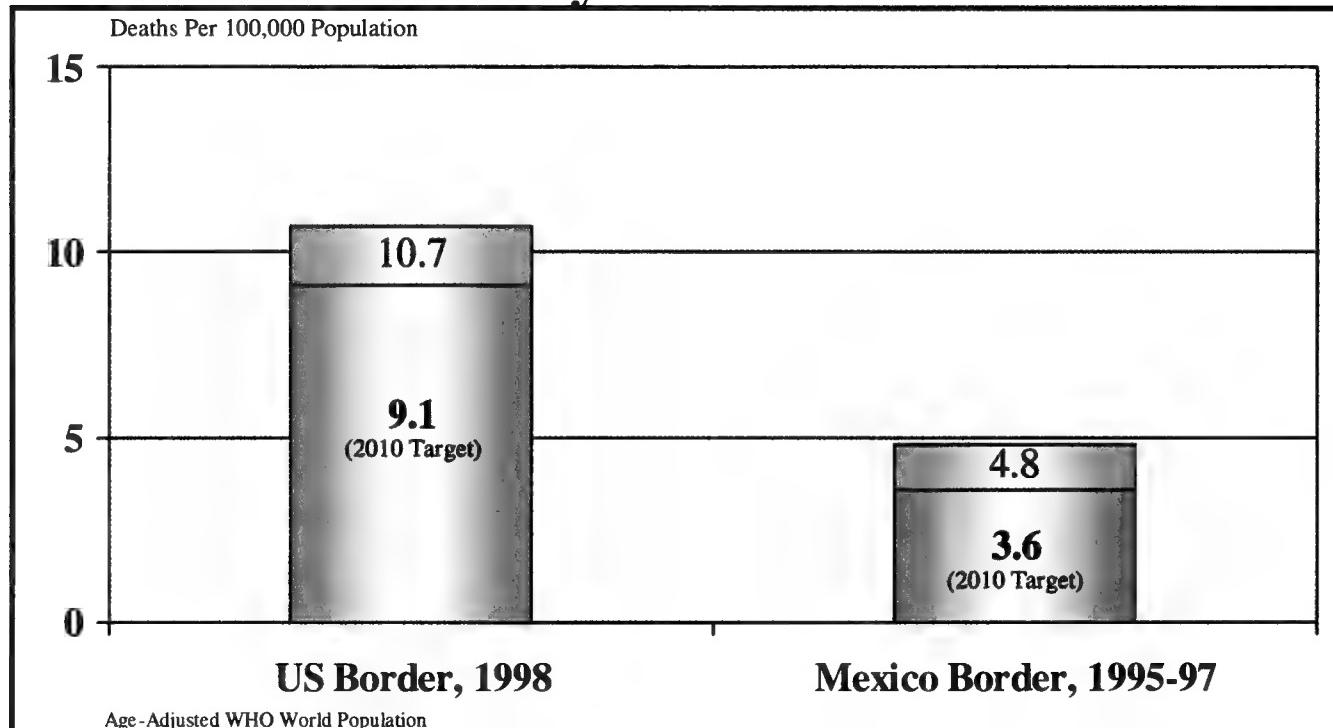
Access to prenatal care remains an issue on both sides of the border. Early initiation of prenatal care is important for the identification of health problems and risk factors. A sufficient number of prenatal care visits permits tracking of potential problems and interventions to address health problems or behavioral risk factors. In 1998, only 74 percent of women who gave birth on the U.S. border initiated prenatal care in the first trimester; and only 63 percent received adequate care in terms of both timing and number of prenatal visits. In Mexico the focus is on the number of prenatal care visits received by each woman. Although the recommended number of prenatal care visits is 5, the national average is 4.1 visits. In the Mexico border region, the average number of prenatal visits for women without access to the Social Security system is 3 visits. Two of the largest *municipios*, Tijuana and Juarez, average only about 2 prenatal visits. In contrast, Agua Prieta and Anahuac report an average of more than 5 visits per pregnant woman.

Mental Health

Mental disorders are health conditions characterized by altered thinking, mood, or behavior that are associated with distress or impaired functioning. These conditions can lead to a variety of problems including disability, pain, or death. The prevalence of mental illness in the border population is unknown, but in the United States about 22 percent of the population is affected by a mental disorder annually.

Suicide, a major public health problem in both countries, occurs most frequently as a consequence of a mental disorder. There were nearly 1,600 suicide deaths in the border region, with about 250 in Mexico and about 1,300 in the United States in 1998. The age-adjusted suicide death rate was 10.7 per 100,000 population for the U.S. border region, and 4.8 for the Mexico border in 1995-97.

Suicide Mortality



Source: Mexico: Mortality Profiles of Sister Communities on the United States-Mexico Border, PAHO, 2000; United States: National Center for Health Statistics, CDC.

U.S. objective:

- Reduce the suicide mortality rate by 15 percent
- from 10.7 to 9.1 per 100,000 (World standard)
- from 12.9 to 11.0 (U.S. 2000 standard)

Mexico objective:

- Reduce the suicide mortality rate by 25 percent
- from 4.8 to 3.6 per 100,000 (World standard)
- from 5.3 to 4.0 (Mexico 1990 standard)

Burden of Mental Illness

Mental illness significantly contributes to disability worldwide, and creates a substantial public health burden in the form of impaired health and productivity. The World Health Organization's Global Burden of Disease study concludes that mental illness causes as much

disability as heart disease and cancer in the United States. Costs associated with mental disorders include direct costs for diagnosis and treatment as well as costs associated with lost or decreased productivity as well as disability insurance.

Of the principal mental disorders, major depression is thought to be one of the most important. The World Health Organization considers major depression to be the leading cause of disability among adults in developed nations. Suicides are often related to major depression and manic depressive or bipolar illness. The co-occurrence of addictive disorder with depression and other mental disorders is a significant problem, as it complicates clinical treatment for each disorder.

Trends in Suicides

The rate of suicide deaths per 100,000 population has declined in the border region over the past decade, but remains relatively high in certain states and border communities. In the U.S. border region, the suicide death rate is highest in Arizona and New Mexico, and lowest in Texas. The suicide death rate for the U.S. border has remained equal to or slightly above the U.S. national rate for the past decade. The suicide rate exceeds the U.S. national rate for all age groups with the exception of teens and young adults (15-24 years of age), and the excess is especially high in the oldest age group (75 years and older).

In Mexico, the suicide death rate on the border has gradually increased over the decade, from 2.7 in 1990 to 5.3 in 1998. The national rate has also increased during the 1990s. More than half of all suicides are among people aged 25-44 years on the border, while this age group accounts for only one-third of all suicides at the national level. Among the *municipios*, the highest death rates are found in Nogales, Juarez, and Piedras Negras. In both countries, the suicide rate is substantially higher among men than women.

Treatment of Mental Illness

Access to mental health care services is an issue in the U.S.-Mexico border region, just as it is for access to general medical services. Barriers include a shortage of specialty mental health providers, and of providers who meet the linguistic or cultural needs of patients. Public sector mental health services are insufficient or not available in some parts of the border region. In addition, many health insurance programs in the U.S. border region provide lesser access to mental health services than to other health services.

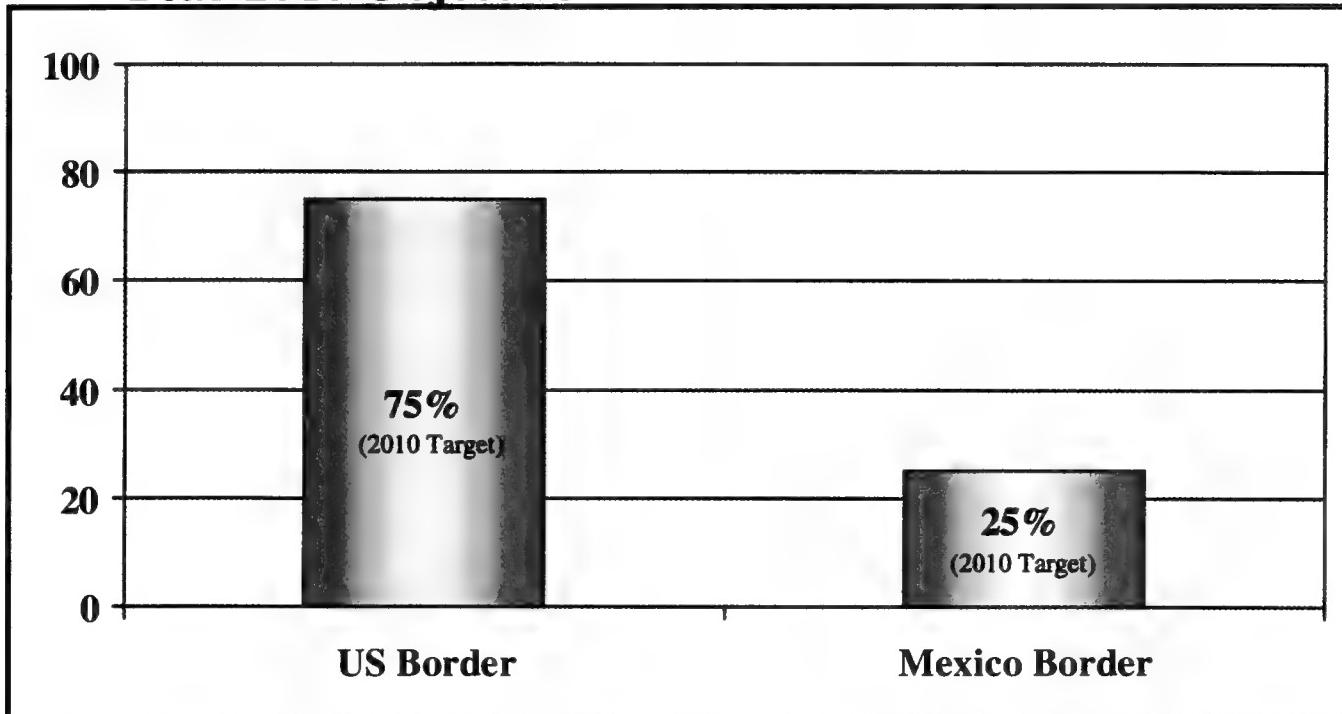
Oral Health

Oral health is an essential component of health, and one that is particularly lacking for certain population groups in the U.S.-Mexico border region. In both countries, low income groups have the poorest access to dental health services. In the United States, this unmet need for dental treatment is high for Mexican-American children, particularly for the children of Mexican-American migrant farm workers.

Essential dental services include:

- treatment of dental cavities
- preventive services such as dental sealants
- dental restorative treatments such as replacement of permanent teeth
- screening and diagnosis of oral and pharyngeal cancers
- identification and referral for treatment of oral birth defects such as cleft lip and cleft palate.

Population Using Oral Health Care System Annually: Year 2010 Objective



U.S. objectives:

- Increase to at least 75 percent the proportion of children and adults using the oral health care system each year.

Mexico objectives:

- Ensure that 25 percent of the population uses oral health services annually.

Availability of Oral Health Services

Access to dental care in the U.S.-Mexico border region is even more problematic than access to primary medical care services. A rapidly growing population on both sides of the border makes it difficult to increase the ratio of dentists to the population. Other barriers to care include the cost of dental care, lack of dental health insurance on the U.S. side of the border, and unavailability of linguistically and culturally sensitive dental personnel.

Levels and Trends in Dental Health

In both countries, the level of dental cavities in children has declined in recent decades, due to increased use of toothpastes containing fluoride as well as community water fluoridation

(United States) or fluoride supplementation of salt (Mexico). However dental cavities remain a significant problem for certain subgroups of the population, in particular for low income groups. In the United States, Mexican-American children in the Southwest region have 2-3 times as many decayed permanent teeth as the mean number for the total population in the region. In particular, the disparity is greatest for those 15-17 years of age. Treatment needs for children above 14 years of age was also the most expensive, requiring large numbers of extensive restorations such as crowns and prosthetic replacements. The greater need among older children is probably due to the failure to provide earlier treatment for dental cavities.

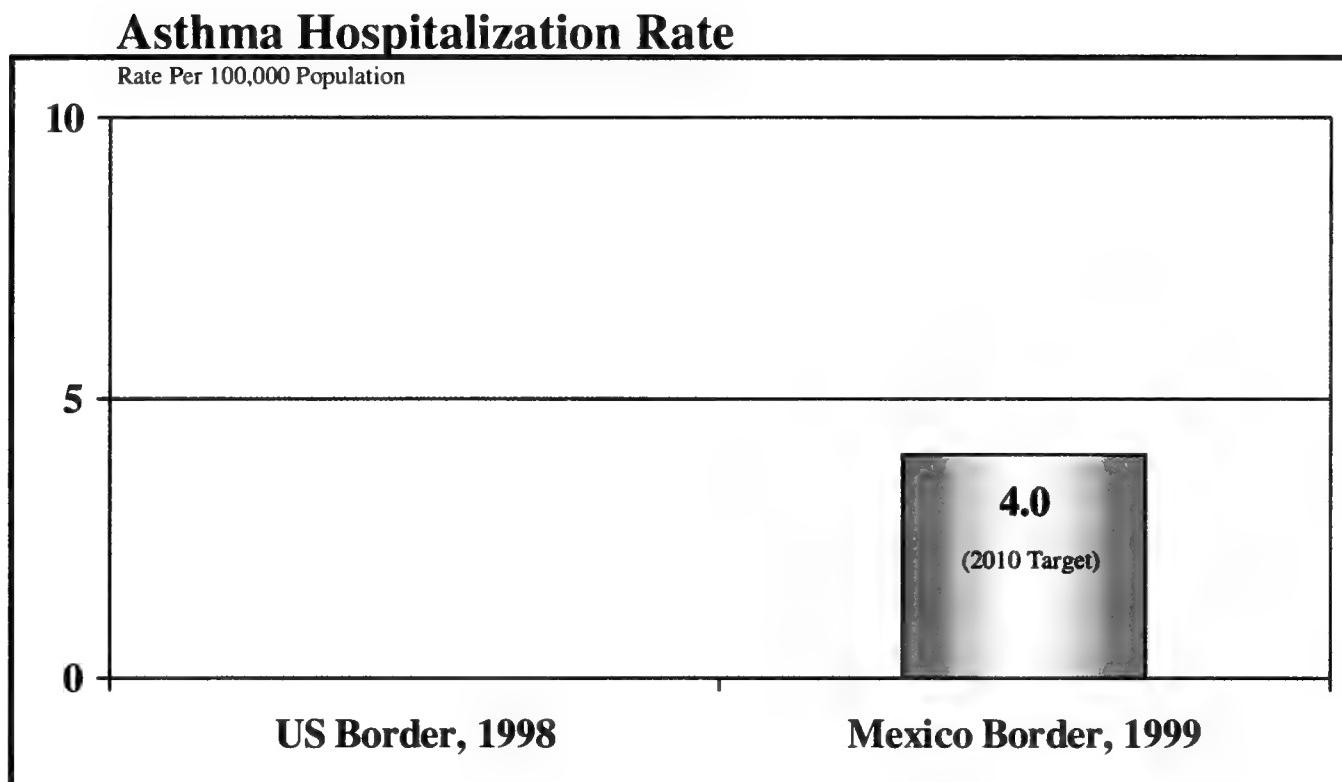
Improving Oral Health

A continued focus on oral health by government and professional organizations will help to improve oral health in the border region. Increasing the number of dental personnel, along with community-based treatment programs, will provide affordable access to dental care for the underserved population. To reduce oral and pharyngeal cancers, dental personnel must provide comprehensive oral cancer examinations on a routine basis for high-risk persons, including all those aged 40 years or more. An important part of improving oral health is developing oral health literacy – the ability to find or understand oral health information and services – in the population at large. Oral health literacy is essential to ensure that border residents practice appropriate oral hygiene and schedule regular dental visits and other aspects of oral health care.

Respiratory Diseases

Asthma is a serious and growing health problem for the border regions of both the United States and Mexico. In the United States, asthma is one of the 10 leading chronic conditions resulting in restricted activity, and is the second most common cause of chronic illness in children. Complications of asthma lead to significant levels of restricted activity, hospitalization, and death. Environmental factors can contribute to illness or disability from asthma, and can trigger asthma episodes.

Reducing the impact of asthma requires active interaction between the patient and physician. By working together on managing the disease according to established guidelines, the physician and patient can mitigate or eliminate many of the problems associated with asthma.



U.S. objective:

- Reduce the asthma hospitalization rate by 40 percent
- data not yet available.

Mexico objective:

- Maintain the asthma hospitalization rate at 4.0 per 100,000 population

Levels and Trends of Asthma

In both Mexico and the United States, asthma prevalence and hospitalization has risen significantly in the last two decades, particularly among children and adolescents. Complete information is not available for the entire U.S. border region, but asthma prevalence and hospitalization are high in the border regions of California and Arizona. Imperial County, California saw a sharp rise in the childhood hospitalization rate from the mid-1980s to the mid-1990s. In general, acute episodes of asthma requiring emergency room treatment or severe cases requiring hospital admission tend to be higher in populations lacking access to health care.

In Mexico, there are about 70,000 cases of asthma per year in the border region, or a rate of about 418 per 100,000 inhabitants. The border rate is nearly double the national asthma rate of 267 per 100,000. The highest asthma rate was reported in border state of Tamaulipas (580), followed by Chihuahua (455) and Baja California (451).

Environmental Factors and Asthma

Increases in asthmatic symptoms have been associated with a variety of pollutants. Illness and disability from asthma have been found to be related to air pollutants, such as ozone and particulate matter, allergens, and exposure to some pesticides. Excessive levels of some air pollutants exist in some parts of the border region: The California border region has exceeded federal and/or state standards for ozone and particulate matter, while the El Paso/Las Cruces area of Texas and New Mexico also exceeds federal ozone standards. Yet the absence or inadequate amount of air monitoring equipment in the border area makes it impossible to determine the relationship between pollutant levels and illness and disability for asthma.

Effective Management of Asthma

Hospitalization is required for severe episodes of asthma, and is not a measure of disease incidence or prevalence. In many cases, hospitalization is the result of a lack of effective management of the disease. Improved asthma control can result from physician-patient interaction in four areas of asthma management:

- avoiding or controlling the factors that can lead to asthma episodes, such as environmental pollutants;
- managing asthma through medications appropriate for the severity of the disease;
- monitoring the disease via objective measures of lung function;
- educating the patient to become actively involved in managing the disease.

In the United States, much of the recent growth in asthma hospitalization has occurred in populations characterized by poverty and a lack of access to health care. These groups suffer disproportionately from complications of asthma brought about by higher levels of environmental exposures, lack of quality medical advice, and inadequate financial resources for long-term management of the disease.

Appendix 1: Glossary and Bibliography

Glossary

Bilateral – Affecting two sides or two parties. In this case, issues affecting the United States and Mexico.

Binational – Of or pertaining to two nations.

Chronic Disease – A disease that continues for a long time, or progresses slowly, such as diabetes or heart disease. Sometimes referred to as a Non-Communicable Disease.

Colonias – The Spanish term used to describe rural and unincorporated subdivisions of U.S. cities located along the U.S.-Mexico border. They are characterized by substandard housing, inadequate plumbing and sewage disposal systems, and inadequate access to clean water. Typically they are concentrated areas of high poverty that are physically and legally separated from neighboring cities.

Hispanic – A person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race.

Infectious Disease – Sometimes referred to as a Communicable Disease. Infectious diseases can be defined as:

Any disease caused by the entrance, growth, and multiplication of bacteria or protozoans in the body; a germ disease. It may not be contagious.

A disease communicated by germs carried in the air or water, and thus spread without contact with the patient, such as measles.

A disease transmitted only by a specific kind of contact.

Maquiladora – The Spanish term referring to an assembly plant in Mexico (typically near the United States border). Parts or raw materials are shipped into the plant and the finished product is shipped back across the border, or to its country of origin.

Mexican-American – Descendants of Mexicans born in America, and who are citizens of the United States.

Migration – The movement of a group of people from one country or locality to another.

Municipio – The Spanish term referring to a political region that is equivalent to a county in the United States.

National Health Indicators (*Indicadores de Resultados*) Program – A set of health measures established by the Mexican Secretariat of Health. 46 indicators were selected to evaluate and monitor the effectiveness of health policies within Mexico, as part of a program to decentralize the Mexican health care system.

Sister Cities – Two major cities separated by the U.S.-Mexico border, but interdependent on one another.

Stakeholders – Individuals or groups who directly or indirectly receive the benefits or sustain the costs derived from the action of the firm: shareholders, employees, managers, customers, suppliers, debtholders, communities, government, and so forth.

Underserved Populations – Communities that lack basic public infrastructure, including access to health care, clear water, water treatment, etc.

U.S.-Mexico Border Area/Region – Legally defined under the La Paz Agreement (1983) as the region within 100 kilometers (approximately 62 miles) of the border between the United States and Mexico.

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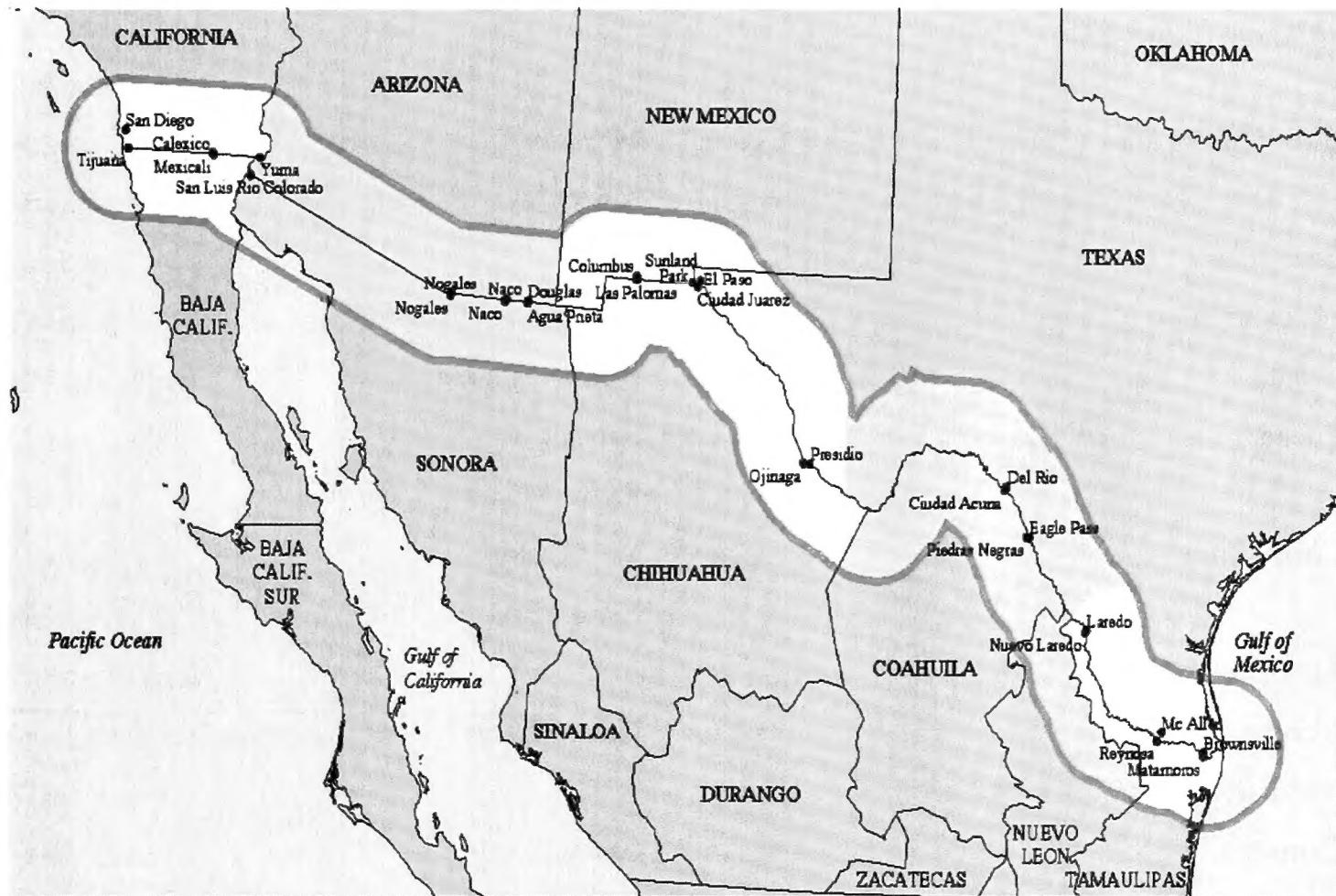
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Appendix 2: Healthy Border Topic Areas and Objectives

<i>Topic Area</i>	<i>Year 2010 Objective</i>	
	<i>Mexico</i>	<i>United States</i>
Access to Health Care	Maintain at less than 5% the population without access to basic health services	Reduce by 25% the population lacking access to a primary care provider in an underserved area
Cancer	Reduce breast cancer mortality by 20%.	Reduce breast cancer mortality by 20%.
	Reduce cervicouterine cancer by 20%.	Reduce cervical cancer mortality by 30%.
Diabetes	Reduce diabetes mortality by 10%.	Reduce diabetes mortality by 10%.
	Maintain the current level of hospital admissions for diabetes.	Reduce hospital admissions for diabetes by 25%.
Environmental Health	Household sewage connection objective not established.	Reduce to zero the proportion of households not connected to compliant public sewage systems or septic tanks.
	Maintain the current level of hospital admissions for acute pesticide poisoning	Reduce by 25% the hospital admissions for acute pesticide poisoning.
HIV/AIDS	Maintain HIV incidence at 1999 level or below.	Reduce incidence of HIV cases by 50%.
Immunizations and Infectious Diseases	Reduce the incidence of hepatitis cases of all types by 50%.	Reduce the incidence of hepatitis A and B cases by 50%.
	Reduce the incidence of tuberculosis cases by 10%.	Reduce the incidence of tuberculosis cases by 50%.
	Maintain immunization coverage at 95% or higher for children under age 1 and age 1-4 years.	Achieve and maintain immunization coverage rate of 90% for children 19-35 months.
Injury Prevention	Reduce the motor vehicle crash death rate by 20%.	Reduce the motor vehicle crash death rate by 25%.
	Reduce the childhood death rate due to accidents by 50%.	Reduce the childhood death rate due to accidents by 30%.

Maternal, Infant and Child Health	Reduce the infant mortality rate by 50%.	Reduce the infant mortality rate by 15%.
	Reduce the infant mortality rate due to birth defects by 50%.	Reduce the infant mortality rate due to birth defects by 30%.
	Raise initiation of prenatal care in first trimester to 70%.	Increase initiation of prenatal care in first trimester to 85%.
	Reduce pregnancy rate in adolescents 15-19 years by 20%.	Reduce pregnancy rate in adolescents 15-17 years by 33%.
Mental Health	Reduce suicide mortality rate by 25 percent.	Reduce suicide mortality rate by 15 percent.
Oral Health	Ensure that 25% of population uses oral care services annually.	Raise proportion of population using oral care to 75% annually.
Respiratory Diseases	Maintain hospital admission rate for asthma at current level.	Reduce hospital admission rate for asthma by 40%.

Appendix 3: Map of the U.S.-Mexico Border Region



Appendix 4: *Municipios* and Counties of the U.S.-Mexico Border Region

Mexico *Municipios*:

Baja California	Morelos
Ensenada	Múzquiz
Mexicali	Nava
Tecate	Ocampo
Tijuana	Piedras Negras
	Sabinas
	Sierra Mojada
Chihuahua	Villa Unión
	Zaragoza
Ahumada	
Aldama	Nuevo León
Ascensión	
Camargo	Anáhuac
Casas Grandes	Agualeguas
Coyame Del Sotol	Aldamas, Los
Guadalupe	Cerralvo
Janos	China
Juárez	Doctor Coss
Manuel Benavides	Doctor González
Nuevo Casas Grandes	General Bravo
Ojinaga	General Treviño
Praxedis G. Guerrero	Herreras, Los
	Higueras
Coahuila	Lampazos de Naranjo
	Melchor Ocampo
Acuña	Parás
Allende	Ramones, Los
Guerrero	Sabinas Hidalgo
Hidalgo	Vallecillo
Jiménez	
Juárez	Sonora

Aqua Prieta	Cucurpe
Altar	Fronteras
Arizpe	General Plutarco Elías Calles
Atil	Imuris
Bacerac	Magdalena
Bacoachi	Naco
Bavispe	Nacozari de García
Benjamin Hill	Nogales
Caborca	
Cananea	
Oquitoa	Sáric
Pitiquito	Trincheras
Puerto Peñasco	Tubutama
San Luís Río Colorado	
Santa Ana	
Santa Cruz	
Tamaulipas	
Camargo	Nuevo Laredo
Guerrero	Reynosa
Gustavo Díaz Ordaz	Río Bravo
Matamoros	San Fernando
Méndez	Valle Hermoso
Mier	
Miguel Alemán	

U.S. Counties:**Arizona:**

Cochise
La Paz
Maricopa
Pima
Pinal
Santa Cruz
Yuma
Edwards

California:

Frio
Imperial
Riverside
San Diego
Jim Hogg

New Mexico:

Kinney
Doña Ana
Grant
Hidalgo
Luna
Otero
Sierra
Reeves
Starr
Sutton

Terrell
Uvalde
Val Verde
Webb
Willacy
Zapata
Zavala

Texas:

Brewster
Brooks
Cameron
Crockett
Culberson
Dimmit
Duval
El Paso

Hidalgo
Hudspeth
Jeff Davis

Kenedy
La Salle
McMullen
Maverick
Pecos
Presidio
Real